

THE NORTH DAKOTA Soybean GROWER MAGAZINE

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The State of Water

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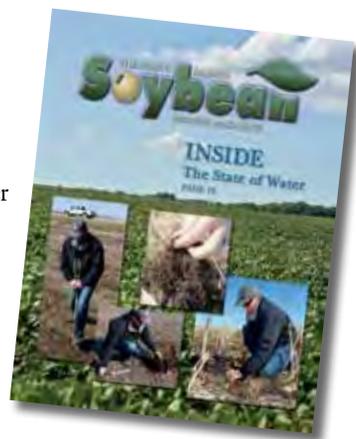
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On the cover

Farmers across North Dakota must manage water. Whether it is dealing with too much, struggling with too little or trying to work in harmony with nature, water challenges affect nearly every farmer. In this issue we take a closer look at North Dakota's water resources and what's being done to benefit both agriculture and water quality.

—Photos by Daniel Lemke and Wanbaugh Studios



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Our gratitude to lawmakers for their hard work this session.

As this is being composed for you, the ND Legislature has been wrapped up about 12 hours. The NDSGA wants all legislators to know that we appreciate the sacrifice of time and effort exacted by the process of making law. Of course, the two Agriculture committees had a direct bearing on what growers do, but so does Transportation, Finance and Tax as well as Political Subdivisions and others. We want to thank the respective Chairs, Vice Chairs and members who went through the details and hashed it out. Believe me, especially when you live outside of the Bismarck/Mandan area, forgoing your family, business, farm and friends for four months, it takes a toll. Our sincere gratitude is deserved.

Because the opportunity presents itself now on this page, I would point out to all soybean growers that Scott Rising has been serving for the last 10 years or so as your Legislative Director. His perspective, dedication, strategy and work ethic are characteristics that, when viewed in total, are unsurpassed by any lobbyist in our Capitol. Without question, you are well represented by him. It has been an honor to work with Scott, trying to learn from his angle and to

differentiate that role from my previous Senate position.

There were several issues of varying importance to growers and I will compress them for a general view of what happened. For further detail, you may want to read any of my 34 blog entries at ndsoygrowers.com/blog/

So in a quick look, here were some of the issues we followed and worked: Drain Tiling, now called subsurface water management, ended up with wording that has County Water Resource District board members taking a water management class every three years, putting in a $\frac{3}{8}$ drain coefficient measure, describing new timelines for notifications, technical evidence requirements and permit fees not to exceed \$150 along with language about systems that directly outlets into a legal drain and more.

Legal Drains which might require a reluctant landowner's permission was changed to lengthen the process with the idea to not mention the WRD's ability to use or even mention Quick Take until negotiations have transpired for at least 60 days and after a hearing. It's more detailed, but that is the gist. Slower now, the process was dubbed Medium Take by opponents, but



Veteran lawmaker and educator Phil Murphy has joined the NDSGA to serve as liaison between legislators and farmers.

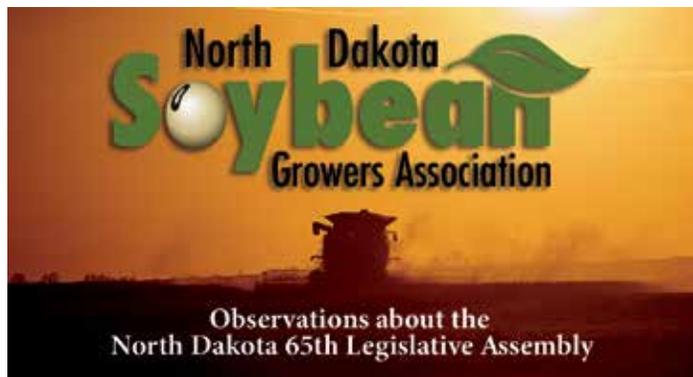
it is still faster than the 2 years for Eminent Domain.

The task I busied myself with the last few days when conference committees are few and far between was to meet individually with each of the seventeen lawmakers on what is called Legislative Management. This is because they make the decisions about what to approve to study in the interim – the 20 months between sessions – as committees will try to learn about nagging problems. The one we watched is to learn whichever committee gets (could be Transportation or Finance and Tax) to study how North Dakota can fund its road and bridge system. According to the

Upper Great Plains Transportation Institute, we are funding only about 30 percent of our depreciation. We also followed transportation issues, property taxes, trying to help keep the 2-year training programs for producing future mechanics for the farm, Research and Extension, Ag Products Utilization Commission, the State Mill and Elevator, the Commodity Governance bill, and the Public Service Commission. They tell me I will have a couple more pages next issue to explain in more detail.

Good luck out there.

—Story by Phil Murphy,
photo by Dan Lemke



Membership gives farmers a voice.

Every year, we, as farmers, make preparations for the next growing season. We do our homework to make sure that we plant the right seed, put down the right nutrients and manage weeds because we know the decisions we make now can directly affect our future profitability. As farmers, we also need to be actively engaged with the policies being developed at the state and national level because those decisions can have a major influence on our profitability and our freedom to operate.

The North Dakota Soybean Growers Association (NDSGA) is your voice in agriculture. We represent you, the soybean producer, which cannot be done without your support and membership.

As a soybean producer, you pay the checkoff. These funds are gathered by the North Dakota Soybean Council; funds are utilized for domestic and international marketing efforts, soybean research, producer education and industry promotion. By law, your checkoff funds cannot be used for lobbying. That's where the NDSGA is

your voice on policy action. To be well represented, we need you.

Our organization exists because soybean farmers like you recognize the need to have a unified message. Your membership is vital as we strive to have a louder voice on policies, whether that means working on a new farm bill in Washington or advocating for farmers on water issues in Bismarck. There truly is strength in numbers.

I had the chance to testify in Bismarck this past session on issues representing what that the NDSGA feels is right for producers. We examine bills and show our support for those that benefit farmers, and show our concerns about legislation which we think would be harmful to producers. When I was first elected to the NDSGA board, I never thought that I would do something like testifying in front of lawmakers. After being engaged, I realized how important it is that we have a strong, unified voice.

I have always felt that, if you want control of your own future in agriculture, you have to commit yourself to becoming a member. If we do not have a strong hold on our own future, we let someone else decide the future for us. Every producer

needs to be engaged, whether that engagement means being a member or supporting our cause.

The North Dakota Soybean Growers Association thrives as members make its voice stronger. Therefore, we ask for your renewed support of the association. I am asking you to make the effort to reach out and to become a member of our great organization. Make that commitment, and help us to shape our future in this great state.



Craig Olson, President North Dakota Soybean Growers Association



Membership Application

To join ASA and the North Dakota Soybean Growers Association, complete and return this application with payment.

Name: _____
 Spouse: _____
 Date of Birth: _____
 Farm/Company Name: _____
 Address: _____
 City, State, Zip: _____
 County: _____
 Phone: _____
 Cell: _____
 Email Address: _____

Occupation (Please check all that apply)

- Farmer Retired Agribusiness
 Finance Elevator Other

Do you currently grow soybeans?

- Yes _____ No _____

Soybean Acres: _____ Total Acres Farmed: _____

Do you raise:

- Cattle Hogs Poultry Dairy

How did you hear about NDSGA? (Please circle one)

Recruited in person; Recruited by phone, Magazine;
 Internet; Mailing; Radio; Event; Other

- 3-Year Membership \$200 1-Year Membership \$75

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Card Number: _____

Expiration Date: _____/_____/_____ CVC: _____

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Mail application with payment to:

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A Hands-on Approach

Jeremy Wilson slowed the Ford diesel pickup to a halt on the edge of a field south of Jamestown,

North Dakota. He bailed out of the driver's door, popped open the tailgate and grabbed a spade. A few paces later, Wilson unearthed a shovel full of rich, black soil, complete with decomposing crop residue, living root structure and several nervous earthworms.

"There's lots of life in here," Wilson said, thumbing the soil apart to reveal the retreating worms.

Although it was early April, this particular field was already

greening up because fall-planted cereal rye was taking advantage of the sunlight and carbon in the air to spring to life. In just a few weeks, the rye would be terminated, and the soil would provide a seedbed for soybeans, one of Wilson's three main cash crops along with wheat and corn.

The scene was repeated several times as Wilson checked multiple fields, all of them covered with a protective layer of decomposing

crop residue. Fields with a long history of no-till and cover crops showed well-aggregated soils, which is the desired effect.

Catch and Release

The land Wilson and his wife farm south of Jamestown has been in the family for four generations. His grandfather settled there in the 1930s and began farming. Through the years, the Wilsons grew a variety of crops and even raised cattle for a while. When Jeremy Wilson began farming in 1998, he liked what he saw from no-till farming. Although he is not a soil scientist, Wilson says that he's learned a lot about soil health and productivity by being hands on. He's done his own soil sampling, variable-rate fertilizing and zone nutrient management, which has helped him learn about the soil's role in crop productivity.

"The difference between the best soils and second-best soils is the amount of soil life," Wilson says. "When we are planting into the same soil types using the same seed but one productivity zone was out-

performing the other, the biggest difference was the soil organic-matter level. Looking at that, we realized we could increase soil productivity by increasing its health."

Most of the land that Wilson farms is in long-term no-till. Some fields haven't seen tillage equipment since 1999. He started experimenting with cover crops in 2002.

"We've been all in with cover crops since 2008," Wilson says. "They use up excess soil moisture and keep living roots in the soil all year round, including before and after the cash crop."

Wilson credits a diverse plant biology with helping to build better soils. His cover-crop mixture includes cool- and warm-season grasses, cool- and warm-season broadleaves, legumes and non-



Freshly dug topsoil in one of Jeremy Wilson's no-till fields revealed roots, decomposing crop residue and earthworms.



Jeremy Wilson checks the soil in one of his fields. Some of Wilson's fields haven't been tilled since 1999.

legume species. Wilson says that the cover crops give him a version of nutrient catch and release. He employs a one-pass approach in the spring, planting crops and putting down some nutrients at the same time. Because he doesn't want to put a season's worth of nutrients down at one time, he split applies nitrogen on both corn and wheat. Not all the nutrients leave the field with the cash crop, which could allow mobile nutrients to blow or wash off the soil. Cover crops, such as barley, rye, turnips and radishes, reduce the likelihood that will happen.

"Whatever nutrients are in the cycle after the cash crop is mature, the cover crops will catch and release back into the soil as they decay," Wilson says. "Those nutrients will be available for next season's crop."

Dealing with Water

Because of his location, water is an ever-present concern for

farmers. Much of the land that Wilson farms is pock-marked with potholes, wetlands and waterways. Some sections have between 30 and 50 water-filled potholes.

Wilson is concerned about water quality, including the role of nutrient management. Because some nutrients that affect the water's quality can leave fields attached to soil, there is a direct connection between soil health and water quality. Wilson feels that he is on the right path for protecting water by greatly reducing wind and water erosion.

Nutrients such as phosphorous are attached to the soil. Losing soil through erosion means that some of those nutrients will likely end up in rivers and streams. Keeping the soil covered reduces the chances that valuable topsoil and the attached nutrients will end up where they're not wanted.

"Taking a soil-health approach

has changed our water management," Wilson says.

Wilson says that his father and grandfather installed some drainage during the 1950s through the 1970s. With conventional tillage, they frequently needed to clean drains.

"Tillage tools move soil. We're not doing tillage, so we're not plugging our drains," Wilson says.

In addition to keeping the soil in place, crop residues and higher soil organic matter increase the soil's ability to handle excess moisture, including heavy rains.

"With higher organic matter, the soil holds and stores more water and nutrients, which allows crops to use them more efficiently," Wilson says.

Soil Focus

Wilson recognizes the increasing attention being paid to water in North Dakota and, particularly, agriculture's role. Local, state and

national discussions are taking place for decisions that could affect farmers or bring additional regulation to farm activities. Therefore, he feels that it is important to take care of the water by focusing on the soil.

That focus is also productive. Wilson says that he benchmarks his farm's performance against North Dakota State University's regional and county averages, which his farm regularly exceeds. Despite nearly 20 years of focusing on soil health, Wilson understands that there is still a lot to learn.

"There are so many unknowns yet. There are so many things we're learning about how much soil health matters and how much soil biology can impact our ability to produce food," Wilson adds. "The soil has a lot to give."

—Story and photos by Daniel Lemke

**PROBLEMS WITH
GOOSE DEPREDATION?**

The North Dakota Game and Fish Department and USDA Wildlife Services offer assistance programs for producers who are experiencing crop depredation by geese, including scare devices, harassment techniques and training.

For chronic problems on agricultural land, special depredation permits are available that allow destruction of nests and eggs, and direct killing of Canada geese and goslings that do not respond to nonlethal deterrents.

Producers who have not had a depredation permit in the past require a site inspection from USDA Wildlife Services, and can call 701-355-3300 to begin the process. For more information about Canada goose depredation permits, visit the Game and Fish website at www.gf.nd.gov/plots/landowner, and scroll down to "Depredation Assistance." Qualified previous permit holders can renew their permit at the Game and Fish web address above, or call 701-328-6610.

NORTH DAKOTA GAME AND FISH DEPARTMENT

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Bismarck, ND 58501-5095
701.328.6351 Email: ndgf@nd.gov
Web: gf.nd.gov




Jamestown farmer Jeremy Wilson is protecting water quality by focusing on soil health.

Dear Valued Soybean Producers,

With planting season in full gear, let's take a moment to celebrate all that you accomplished during the 2016 production year:

- Soybean acres planted: 6.05 million
- Soybean acres harvested: 6 million
- Average yield per acre: 41.5, a record!
- Total soybean production: 249 million bushels
- Rank in the U.S. for total soybean acres planted and harvested: #4

According to a March 31 Planting Intentions Report issued by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS), you are prepared to use more of your land for soybeans: a record 6.9 million

acres are expected to be planted this year! This number is an increase of 14 percent from 2016.

While this news is exciting, it is also a double-edged sword because, with more acres, prices are likely to decline. Whether the projected increase in acres will be a reality is still a big question. It is early, and planting intentions can change due to weather or other external factors. With the potential for a record soybean crop, exports and demand are more important than ever.

China remains the number one importer of U.S. soy. As worldwide appetites for soybeans grow, so does the North Dakota Soybean Council's efforts to open new markets and to build preferences for U.S. soy in other areas such as India and its neighboring countries.

We expect to see progress on

plans to construct a new soybean-processing facility near Spiritwood. This plant will help create a domestic market for North Dakota soybeans. The facility is expected to be operational by the 2018 harvest season and will crush 125,000 bushels of soybeans a day; those soybeans will be used to produce soybean meal, cooking oil and biodiesel.

In the meantime, please be assured that the North Dakota Soybean Council will continue working hard on your behalf in order to increase exports, to raise demand and to add value to North Dakota beans, helping to ensure that the market stays active.

I wish you a very safe, productive and successful planting season!



Diana Beitelspacher,
Chief Executive Officer
North Dakota
Soybean Council

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Phone:
1-888-469-6409

At its March 2017 board meeting, the North Dakota Soybean Council (NDSC) bid farewell to veteran board members (from left to right): Tyler Speich, Milnor; Mike Appert, Hazelton; and Art Wosick, Minto. NDSC sincerely thanks these three men for their many years of dedication and service to North Dakota's soybean industry. An appreciation cake was presented by CEO Diana Beitelspacher (far right) on behalf of NDSC.





North Dakota Soybean Council Elects Executive Officers

Executive-board officers were elected during the North Dakota Soybean Council's (NDSC) board meeting on March 29. Joe Morken of Casselton was elected chairman of the board. Morken represents soybean farmers in Cass County. He has been growing soybeans with his parents and wife, Robin, for 17 years. He comes from a third-generation small-grain and sugarbeet farm. Morken graduated from North Dakota State College of Science and has served as the treasurer of the Cass County Ag Improvement Association.

"I am honored to be elected chairman and look forward to working with my fellow board members and staff in the year ahead," says Morken. "NDSC's mission to continue to improve profitability for the North Dakota farmer is as important today as it was when our organization was established. With all that is being said in Washington, D.C., I feel our

market-development projects are going to be even more crucial this year. It's important to continue the relationships we have built with our customers and reassure them that we want to continue to do business with them. North Dakota soybean farmers appreciate their business."

The board elected Troy Uglen of Northwood, North Dakota, as the vice chairman. He represents soybean farmers in Grand Forks and Traill Counties. Uglen and his wife, Bobbie, grow soybeans, corn, wheat, dry peas, black turtle beans and spearmint. He is a graduate of North Dakota State University (NDSU), is active with the Northwood Ambulance and Northwood Fire Department, and has been president of the Grand Forks Marketing Club. He has also been a member of the Outstanding Farmers of America.

Matt Gast of Valley City, North Dakota, was elected secretary. Along with his brother-in-law and



From left to right: Chairman Joe Morken, Casselton; Treasurer Austin Langley, Warwick; Secretary Matt Gast, Valley City; and Vice Chairman Troy Uglen, Northwood.

father-in-law, Gast raises soybeans and corn on his family farm. He graduated from Minnesota State University Moorhead with a bachelor's degree in construction management. Along with his wife and children, he enjoys camping, spending time at the lake and vacationing at warm locations. Gast represents the Barnes County soybean producers.

Warwick, North Dakota, soybean producer Austin Langley was elected treasurer. Langley represents

soybean farmers in Eddy, Foster and Wells Counties. He grows soybeans, edible beans, wheat, barley, alfalfa and corn along with his father and uncles on their no-till farm. His family also operates a cow/calf operation. Langley holds a degree from NDSU. He is a member of the National Agri-Marketing Association, Farmers Union and 4-H. He is also active with his local church and the Winchester Arms Collectors Association.

—Story and photo by staff

New Directors Join the North Dakota Soybean Council

New directors recently joined the North Dakota Soybean Council (NDSC). Each director will serve a 3-year term.

Langdon soybean farmer Mike Muhs was elected to represent District 10: Cavalier, Pembina and Walsh Counties. Along with his father, Muhs grows soybeans, corn, canola and wheat. He is a member of the Cavalier County Crop Improvement Association and the Osnabrock Farmers Co-op Elevator board. Muhs is also involved with his local fire department, his church and his children's hockey teams.

Daniel Mock, a soybean farmer from Braddock was elected to represent District 12 which consists of 21 southwest North Dakota

counties. He grows soybeans, corn and wheat on a no-till farm with his brother. He also operates a cow/calf operation. Mock is a member of the Kidder County Township Officers board as well as a past board member of the South Central Grain board and the Farmers Union Oil board. He is also involved with the South Central Threshers and his local Wildlife Chapter.

Dan Spiekermeier, a soybean producer from Sheldon, was appointed to represent Ransom and Sargent Counties: District 2. Dan and his son raise soybeans, corn, wheat, barley and sunflowers. Spiekermeier is the president of the Ransom County Farmers Union and is the Sheldon fire chief. He



From left to right: Mike Muhs, Langdon; Daniel Mock, Braddock; and Dan Spiekermeier, Sheldon.

enjoys hunting, fishing, camping and motorcycling.

Perry Ostmo, a soybean producer from Sharon, was re-elected to represent District 8: Nelson, Griggs and Steele Counties. Ostmo raises soybeans, corn, hard red spring wheat, barley and edible beans. He is involved with his local township

board, the local fire district, the Steele County Township Officers Association, the Steele County Soils Committee, the Steele-Traill County NDSU Extension Advisory Committee, his local church, the Sharon Marketing Club and the Steele County Farmers Union.

—Story and photo by staff



ASA's WISHH Thanks Art Wosick

The American Soybean Association (ASA) and its World Initiative for Soy in Human Health

(WISHH) program thank outgoing North Dakota Soybean Council (NDSC) Board Member Art Wosick for his leadership on the WISHH Program Committee. Wosick has served as a WISHH Program Committee member since 2012, joining soybean growers from across the nation in guiding WISHH and its strategic direction.

“ASA congratulates Art and the other WISHH leaders for their vision and ongoing focus to build long-term markets for U.S. soy protein in human foods and animal feeds,” said ASA President Ron Moore. “WISHH is diversifying U.S. soy’s customer base by working in countries that have some of the fastest-growing populations and

rising incomes that create demand for soy.”

Wosick is the outgoing District 10 NDSC director. The NDSC has tapped District 5 Director Matt Gast of Valley City to represent the NDSC on the WISHH Program Committee.

Thanks to the NDSC and 17 other Qualified State Soybean Boards, WISHH generated a FY17 budget of over \$7 million. Every \$1 in state checkoff funds allowed WISHH to leverage almost \$6 in non-checkoff funds. State soybean-checkoff funds enabled WISHH to leverage outside resources, including U.S. Department of Agriculture funding for Asian soy-market development programs.

During Wosick’s tenure on the WISHH Program Committee, WISHH reached multiple milestones:

- U.S. soybean and soybean-meal exports to Cambodia and Pakistan exceeded 208,000 MT.
- Pakistan—an Asian export market that WISHH graduated to the U.S. Soybean Export Council (USSEC) management—imported 166,368 MT of whole soybeans in 2016.
- After achieving the strategic milestones set by U.S. soy farmers, WISHH also graduated Bangladesh’s programs to USSEC in 2015.
- WISHH’s FEEDING Pakistan Program, which started in 2011,

won continued USDA funding through 2017. The landmark aquaculture feed project sets a model for the benefits of U.S. soy protein in floating fish feeds throughout the world.

- The leading food-processing company in Myanmar continued its \$200 million joint-venture agreement with the Mitsubishi Corporation of Japan. The joint venture has multiple projects that involve soy.
- In 2016, WISHH-led market assessments helped to create roadmaps for future U.S. export growth opportunities with Cambodia, Pakistan and Sri Lanka.

Looking forward, WISHH has a growing list of programs in Asian countries, including work in Cambodia and, in coordination with USSEC, Sri Lanka. The NDSC is selecting a farmer leader to travel with WISHH to see its trade-building activities in Cambodia and Myanmar the summer of 2017.

In August, WISHH plans to bring another team of Asian food- or feed-industry leaders to North Dakota where they can benefit from training offered at the Northern Crops Institute (NCI) in Fargo. The NCI provides valuable training about soy utilization to WISHH supply chain partners.

In 2000, U.S. soybean farmers founded WISHH in order to develop long-term markets for U.S. soy while fueling economic growth and value-chain development. WISHH is the U.S. soybean farmers’ trailblazer for trade.

—Story and photo by WISHH



Art Wosick (left) accepts appreciation from WISHH Chairman Daryl Cates during WISHH’s March 2017 Program Committee meeting in Washington, D.C. Wosick has represented North Dakota soybean farmers on the WISHH Program Committee since 2012.



ASA's WISHH
TRAILBLAZER FOR TRADE
successes

1

Eighteen QSSBs support WISHH, and seven (Illinois, Indiana, Iowa, Michigan, North Dakota, Ohio and South Dakota) each contributed \$100,000 or more per year.

BUDGETS LEVERAGED

6 to 1

WISHH leveraged Qualified State Soybean Board (QSSB) checkoff support to generate a FY17 budget of over \$7 million. Every \$1 in state checkoff funds allowed WISHH to leverage almost \$6 in non-checkoff funds.

2

Mapped new feed and food market opportunities. WISHH-led market assessments in 2016 helped create roadmaps for future U.S. export growth opportunities to

Cambodia, Pakistan and Sri Lanka

as well as select countries in Africa. WISHH executed four USDA Emerging Markets Programs and two Quality Samples Programs. These programs generated information and provided material to support early-stage market development for U.S. soy.

3

Launched in 2011, WISHH's FEEDing Pakistan Program won continued USDA funding (\$325,000) for 2017 to build on the landmark aquaculture feed project.

4

U.S. soybean and soybean meal exports to Cambodia and Pakistan exceeded 208,000 MT. Pakistan--an Asian export market that WISHH graduated to U.S. Soybean Export Council management--imported 166,368 MT of whole soybeans in 2016. Meanwhile, the leading food processing company in Myanmar continues its \$200 million joint-venture agreement with the Mitsubishi Corporation of Japan. The joint venture has multiple projects involving soy.

5

Fifty-four

feed and food processing companies committed to further research and soy product development.

Eighty-five

percent of these 54 companies are conducting product research and development with soy protein for commercial applications.

6

Graduated Bangladesh and Pakistan to USSEC. WISHH and USSEC have developed a system to shift management of market development for activities in countries that have grown from WISHH Program supported, early-stage market development into larger markets.



www.wishh.org





As U.S. farmers prepare to plant a record number of soybean acres, it appears that a good portion of the crop will find a home south of the border.

Mexican soybean and soybean-meal buyers told Midwest farmers and suppliers that they'll continue to purchase from the United States as normal if free trade, especially for agricultural products, isn't disrupted between the two countries. Otherwise, importing from South America is an option they will need to consider.

Speculation about potential reductions for soybean and soybean-product exports to Mexico escalated after President Donald Trump announced plans to renegotiate the North American Free Trade Agreement (NAFTA).

During a trade mission to central Mexico, Midwest soybean farmers, including North Dakota Soybean Council Chairman Joe Morken of Casselton, and representatives of Ag Processing, Inc. (AGP) worked to strengthen relationships the U.S.'s largest soybean-meal customer and the U.S.'s second-largest buyer of whole beans. The trip was part of the Soybean Research & Development Council's Latin America project, which is funded by AGP and several state soybean organization, including the North Dakota Soybean Council.

With 89.5 million acres of soybeans projected to be planted in the U.S., according to a recent government report, participants said that it's crucial to maintain and to increase soy sales to Mexico.

"If things stay the status quo, we will continue to buy. The country is growing, so we'll need more protein, and the livestock industry keeps growing 5-8 percent a year," said Jose Garay, an area manager for Gavilon, an international com-

U.S. Soybean Farmers, Suppliers **STRENGTHEN RELATIONSHIPS** In Mexico

modities trading firm. "We're at a (grain-and-oilseed) deficit here."

Garay works at Gavilon's shuttle station near Encarnacion, Mexico, which receives shuttle trains (110 cars) of soybean meal, corn and dried distiller's grain, mostly from the Midwest. The station sells the feedstocks to area livestock producers and feed mills.

Last year, the facility imported 173,000 metric tons of U.S. soybean meal that were made from a little more than 8 million bushels of beans. Company officials said that 60 percent of the meal was fed to

swine, 30 percent to layers and the rest to other animals.

According to Garay, the facility imported 105,000 metric tons of meal in 2015. He looks forward to a continued, good relationship with AGP, a major meal supplier that is based in Omaha, and U.S. farmers.

"NAFTA is a good thing, and the U.S. is a valuable partner," he said. "The logistics are good, and all the buyers know what (quality) they will get."

Mexico is a growing market for U.S. soybeans and soybean meal, according to the U.S. Soybean

Export Council (USSEC). The U.S. exported nearly 132 million bushels of soybeans and almost 2.2 million metric tons of meal (100.6 million bushels) to the country during the 2015-16 marketing year.

The United States' market share for beans and meal in Mexico is a dominant 86.9 percent and 91.6 percent, respectively, according to USSEC data.

Joe Morken wants to maintain that market share, and hopes to increase it. Morken and other Midwest soybean farmers told buyers that Mexico is an important market to the United States. The farmer delegation assured Mexican buyers that the U.S. soybean industry along with state soybean boards and suppliers will do everything they can to maintain it, including making sure that the Trump administration and U.S. lawmakers know how important trade is to agriculture and not to do anything to disrupt it.

"The Mexican market is very important to farmers from the Dakotas, Iowa, Nebraska, Kansas and AGP," says Morken. "We're all concerned, but building relationships and making the effort to travel down to meet means a lot to keep customers happy."

While touring facilities owned by Empresas Guadalupe, one of the largest, fully integrated egg producers in Mexico, company officials expressed an interest to purchase a 110-car unit train of U.S. soybean meal from AGP. A unit train holds about 10,000 metric tons of meal that is made from nearly 464,000 bushels of soybeans.

Glenn Von Seggern, AGP national account manager, said that Mexico is an important customer.

Only the Philippines buys more meal from AGP for swine and poultry. AGP also ships AminoPlus

—Continued on page 25



Soybean farmers from Nebraska, North Dakota and South Dakota, along with representatives from Kansas and Ag Processing, Inc., in Mexico visiting with buyers and touring the gain-handling and livestock facilities. Joe Morken is pictured in the middle, royal blue shirt.



NDSC Participates in 12th

SE Asia Soy Symposium and Grains Transportation Conference In VIETNAM

The 12th Southeast Asia Soy Symposium (SFS), organized by the USSEC Southeast Asia (SEA), was held on March 23 and 24 in Ho Chi Minh City, Vietnam. The symposium was attended by 115

participants from Southeast Asia, the U.S. and Japan, comprising key soy food and beverage industry personnel, soybean traders and related stakeholders.

This annual event is held regionally around SE Asia in conjunction with the SE Asia Grains Transportation Conference. The conferences enable U.S. soybean grower-leaders the opportunity to meet and network with regional customers and producers and obtain updates about the market's development in the region. SE Asia is one of the top destinations for North Dakota soybeans that are exported each year for both feed and food use.

Collectively accounting for 25 percent of the world's total soyfood consumption, the Association of Southeast Asian Nations (ASEAN, the group of 10 SEA countries) is one of the largest importers of U.S. soybeans for food uses, with an



Mike Appert of Hazelton, North Dakota co-chaired the first symposium session on the U.S. food-soybean supply.



United States Soybean leaders participants at the Asia Grain Transportation Conference in Vietnam

estimated 2.5 million metric tons (MMT) of the 3.6 MMT per year imported into the region designated for soyfood and beverage utilization. Of this amount, Indonesia accounted for close to 2 MMT of the regional import, almost all of which was targeted for the domestic production and consumption of tempe and tofu.

Additionally, Southeast Asia is a developing market for U.S. food-grade, identity-preserved (IP) soybeans, with about 40,000-50,000 MT being imported annually in recent years in order to meet the growing demand of quality soyfood for the modern food and beverage industry. The joint GTC and SFS events were an important platform

for U.S. suppliers to build business networks and to interact with buyers to discuss the benefits of using high-quality U.S. soy in their food manufacturing.

The session, "U.S. Soy Supply—Ensuring Quality and Sustainability Through the Value Chain," was co-chaired by Mike Appert, past vice chairman of the North Dakota Soybean Council (NDSC), and Timothy Loh, USSEC regional director—SEA. The session presented the outlook of U.S. food-soybean supplies and shared how, through the dependable production of U.S. food soybeans and the U.S. Soy Sustainability

—Continued on page 15

Aquaculture: Did You Know?

Aquaculture is increasingly relied upon to provide a sustainable source of nutritious and affordable seafood:

- Globally, aquaculture now provides 50% of all seafood for human consumption
- Aquaculture is the fastest-growing food production sector, and is expected to increase an additional 33% by 2021
- Replacing wild-caught fishmeal and fish oil with alternative proteins, such as soy, eases pressure on ocean resources
- Feed research has resulted in new formulations of soy-



based feed to better meet the nutritional needs of popular carnivorous fish species, reducing fish in:fish out ratios for many species to close to 1:1

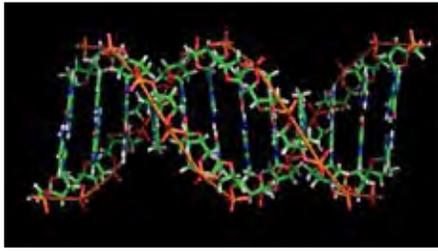
- Soy-based feeds are more affordable for aquaculture operators than fishmeal and fish oil

—Information courtesy of USSEC





THE FUTURE



OF BREEDING TECHNOLOGY

Could the future of soybeans breeding be as simple as copy and paste? According to researchers

using CRISPR technology, maybe.

“Think of this technology as elegant molecular scissors,” said Kevin Diehl, director of regulatory and industry strategy for DuPont Pioneer. “You can point to a place in the genome, have CRISPR Cas technology cut the DNA, which is when the opportunities start for deletions, edits or gene replacements.”

CRISPR, or clustered regularly interspaced short palindromic repeats, is a new type of site-specific genome editing that saves scientists’ time and money. Although the technology has recently received a lot of attention from the mainstream media regarding its applications for human medicine, it also has the potential to have a huge effect on agriculture.

The basis of the CRISPR technology is the ability to precisely change sections of genetic code.

It allows the ability to eliminate, modify and insert new functions into a plant’s DNA. Examples include modifying oil and protein profiles, increasing disease resistance, improving drought tolerance or making a plant more productive. Changing these things by using traditional breeding and the current biotechnology takes years and millions of dollars. With the new technology, the timeline is shorter, and the process is less expensive.

“Our Plenish (high oleic oil soybean) line took seven plus years and millions of dollars using traditional tools,” Diehl said. “To produce similar changes using CRISPR Cas advanced breeding can take one experiment and about three months.”

With traditional breeding, there is a lot of trial and error. When two plants are crossed, they produce a number of offspring, only a few

of which may hold the genes that scientists are trying to construct. The scientists then have to create multiple generations of new plants, which often requires backcrossing in order to remove undesirable genes and to select plants that properly express the desired genes. With abundant DNA sequence data and a solid understanding of the plant’s genome, CRISPR allows scientists to select which gene they would like to alter, cutting straight to purpose, without impacting or introducing additional genes.

This CRISPR technology is already being utilized by industry and academia.

“At the University of Minnesota, we’re focused on developing new mutations in seed composition and plant architecture traits,” said Bob Stupar, associate professor. “This is a promising strategy for crop

improvement and for basic research projects as well. Academic researchers are using, and will continue to use, this technology. It’s rapidly growing in popularity.”

Critics of CRISPR have dubbed the technology “GMO 2.0” and say that agricultural scientists are using it as a way to get around the current biotechnology regulations. The United States Department of Agriculture has indicated that, while the gene-insertion capabilities of CRISPR are subject to regulatory review, products with gene deletions and edits generally do not. A number of products, including the non-browning mushroom and waxy corn, have received a non-regulated determination from the USDA’s “Am I regulated” inquiry process. The first products created using this technology will likely reach the market by the end of the decade.

—Story by Allie Arp,
Iowa Soybean Association



Pooling Resources for the Greater Good

When good people come together, great things happen. While this isn't the official mission of the North Central Soybean Research Program (NCSRP), it's certainly representative of the group's contributions to the soybean industry over the last quarter century.

The NCSRP is a farmer-led organization that invests soybean-checkoff dollars in regional research. Twelve state soybean boards actively participate and fund NCSRP: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. The group meets three times a year to discuss research proposals, the progress of current projects,

common issues among the states and the direction of future research.

"Soybean pests don't know where the boundaries of the states are," said Gene Stoel, NCSRP president and a farmer from Minnesota. "By working together, we get a broader perspective on what needs to be done. The pest may be a little different in each state, but knowing that gives us a leg up on the research that needs to be done."

The 12 NCSRP-member states grow nearly 85 percent of the soybeans produced in the United States and represent more than 350,000 farmers. The farmers representing these states on the NCSRP board have a shared vision as well as a commitment to regionally coordinated research and communication efforts.

"NCSRP is a good place to pool different state resources to research the same thing on a regional basis," Stoel said. "By acting through a regional group, we get all states involved and get solutions together instead of piecemealing different research."

While the NCSRP has funded hundreds of research projects on dozens of topics, Stoel has a few projects close to his heart, including the research done on soybean aphids and soybean rust. He credits the NCSRP with helping to establish the original aphid thresholds and helping farmers understand how to take care of the pest. The NCSRP also funded research that determined how soybean rust spreads, helping farmers to know if,

when and where to apply fungicides: a move that, Stoel says "saved farmers a lot of money."

Farmers may not know the next major yield-robbing they will face, but they do know that, when it comes, there is a farmer-led organization that will support the research and outreach efforts that are needed to help them work through it.

"We've got the people involved in the research who need to be involved," Stoel said. "If they can repeat past successes, we'll be in good hands."

To learn more about the NCSRP and check-off funded soybean research, visit www.soybeanresearchinfo.com.

—Story by Allie Arp,
Iowa Soybean Association

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Assurance Protocol (SSAP), importers of U.S. soybeans and

foods are able to create more value for themselves by continuing to differentiate from their competitors.

USSEC director Aaron Skyberg of SK Food International, a member of the Northern Food Grade Soybean Association (NFGSA), shared the quality traits and Identity-Preserved (IP) soybean-supply system that cater to the needs and target soybean characteristics sought by soyfood and beverage producers through stringent on-farm practices, supply and transportation through the container trade.

Plant breeders work with multiple technologies in order to provide new, advanced crop options for increased yields, excellent environmental management, adaptations to climate change, as well as improved

use of insecticides and herbicides along with attention to quality attributes.

With soybean production that is less than a million metric tons in key SEA countries, sustainable food security in the near future for the ASEAN will continue to depend on managing the food-supply balance between self-production and imports from outside the region. SEA continues to be a strong and growing market for North Dakota soybeans.

—Story by Jen Del Carmen,
USSEC and staff, photos and graphic courtesy of USSEC



From left to right: Mike Appert, North Dakota Soybean Council; Patrick O'Leary, Minnesota Soybean Research and Promotion Council; and Joshua Kayser, South Dakota Soybean Research and Promotion Council learn more about the aquaculture industry in Vietnam.



initiatives designed to protect or improve the state's water resources.

Red River Basin

The Red River Basin encompasses 45,000 square miles in North Dakota, Minnesota and Manitoba before dumping into Lake Winnipeg. There are currently multiple nutrient reduction activities occurring in each of the three jurisdictions. The Red River Basin Commission (RRBC) brings state and provincial representatives together as part of a water-planning board to identify ways to cooperate and to coordinate efforts for improvements.

The RRBC has developed the Natural Resources Framework Plan (NRFP) as a tool to achieve common goals for water protection and management within the Basin. The NRFP has 13 goals, focusing on encouraging communication, research and coordina-

Water. It's a simple compound, but it is a complex resource to manage.

Water is essential for life, but it can be a destructive force. Water is often the focal point of cities while being the lifeblood of farms. Maintaining water that supplies the needs of all residents and business sectors while retaining the quality and quantity needed to be sustainable is a challenge for North Dakota.

North Dakota has had a long and often complicated relationship with water.

Approximately 1,710 square miles of the state are covered by water. Parts of the state need irrigation to be productive while others require drainage. Depending on the season, individual fields may need irrigation, drainage or both. From Red River floods and Devils Lake devouring thousands of acres to the Red River Valley Water Supply Project that would pipe water from the Missouri River to eastern North Dakota, the state has faced water challenges great and small.

"North Dakota has beautiful water resources, but we are seeing some health issues in terms of quality, quantity, sediment, E. coli bacteria and nutrients like

nitrogen and phosphorous," says Mary Podoll, state conservationist for the USDA-Natural Resources Conservation Service (NRCS).

With so much of North Dakota's landscape dedicated to agriculture, farmers are increasingly under the microscope for actions that negatively impact water quality.

"Water quality is a concern for farmers and the general public, so it's something that we need to stay on top of," says Rolette, North Dakota, farmer Ryan Pederson who serves as a North Dakota Soybean Growers Association (NDSGA) director. "Concerns with water and conservation are a constant."

According to the North Dakota Department of Health's (ND-DoH) Division of Water Quality, there are 15 lakes or reservoirs within the Red River Basin that are listed as threatened or impaired because of high nutrients. The Red River Basin has 69 river and stream segments, covering roughly 1,824 stream miles, that are listed for biological impairments, some due to nutrients.

"The state of water in North Dakota is trending downward," Podoll

says. "But now that we know that, we can do something about it."

North Dakota has multiple



More than 5,000 miles of rivers weave through North Dakota, including the James River.

tion across jurisdictional boundaries as well as improvements in water quality; water supply; flood-damage reduction; drainage; conservation; and fish, wildlife, and outdoor recreation.

RRBC Executive Director Jeff Lewis says that the commission has previously focused on flood issues, but more recently, it has been involved with drainage, water supply, soil conservation and water quality. Lewis says that, for agriculture, which is the most-dominant land use in the basin, water quantity and quality are the primary concerns.

The Red River Basin provides some unique challenges due to its large size and the fact that it's an international watershed. In recent years, nutrient contributions from the basin into Lake Winnipeg have moved the issue of water quality and nutrient reduction to the forefront.

"The Red River dumps into Lake Winnipeg, which is having a lot of issues with nutrients," says Lewis. "Canada and the provincial governments are setting nutrient targets for Lake Winnipeg and will likely ask for a 50 to 60 percent phosphorous reduction in water coming out of the Red River."

Several large-scale water-quality modeling efforts have been completed for the Red River Basin as well as several tributary

sub-watersheds. The International Joint Commission, a bi-national organization established by the governments of the United States and Canada, recently worked with the U.S. Geological Survey on a detailed model for the basin.

Using a water-quality model developed jointly by the U.S. Geological Survey and Environment Canada that is referred to as Spatially Referenced Regression on Watershed Attributes (SPARROW), North Dakota, Minnesota and Manitoba will be able to identify source contributions for total nitrogen and total phosphorous across the basin. The SPARROW model estimated that 65 percent of the total phosphorous and 75 percent of the total nitrogen in the Red River basin came from runoff from agricultural land.

"Within the basin, there are lakes and water courses that have various levels of nutrients that are a concern," Lewis says. "Agriculture is the largest land use, so it's not a surprise that agriculture would be the largest source of nutrients."

Lewis says that the goal is to return Lake Winnipeg to nutrient levels found in the 1990s. Since that time, the lake's phosphorous levels have doubled.

"Our intent is to figure out how we start working more cooperatively to meet the needs of the agriculture sector, but reduce the

export of nutrients," Lewis says.

Targeted Efforts

The International Water Institute (IWI) and the NRCS are working to employ technology that can identify areas where conservation and remediation could have the most impact in reducing nutrient export. Using LIDAR (Light Detection and Ranging) technology, Houston Engineering has developed a tool called PTMApp that prioritizes; targets; and measures, down to an individual field scale, where the highest nutrient exports are occurring. The NDDoH and the NRCS will develop PTMApp in North Dakota with financial support from the Red River Joint Water Resources Board.

"This will get us to the point where we can get away from 'random acts of conservation' and target where conservation practices will do the most good," Lewis says.

PTMApp has been used successfully in parts of northwest Minnesota in order to identify and to correct trouble spots.

"So much is tied to soil health," Lewis contends. "Because 85 percent of the basin's land use is tied to agriculture, what we do with the soil will have a big impact on what's leaving the land."

Scott Korom of Barr Engineering in Bismarck agrees that soil health is a key contributor to water quality.

"There's not necessarily a direct link between poor-producing soil and poor water quality, but there is a correlation that soils that don't produce a good crop have an impact on water-quality issues," Korom says.

Through the National Water Quality Initiative (NWQI), the NRCS and its partners are working with producers and landowners to implement voluntary conservation practices that improve water

quality in high-priority watersheds while maintaining agricultural productivity.

The NRCS works with conservation partners to select priority watersheds where on-farm conservation investments will deliver the greatest water-quality improvements. The NWQI is designed to help individual agricultural producers take actions to reduce the loss of sediment, nutrients and pathogens into waterways where water quality is a critical concern. The goal of the NWQI is to implement conservation practices in a concentrated area in order to eliminate agricultural contributions to water impairments within priority watersheds.

Podoll says that the initiative allows the NRCS to identify critical needs and to use the Environmental Quality Incentives Program (EQIP) resources to identify high-risk areas.

"This allows us to use technical-assistance dollars for planners and resources to put in practices like buffers and cover crops," Podoll says. "We'll be able to identify high-risk areas and seek buy-in from the landowners."

Two pilot projects have been identified in North Dakota, one in Stutsman County and another in Cass County. Podoll says that the NRCS saw positive results when it worked with partners to focus on the state's soil health, so she's hopeful that the same thing will happen with water quality through this initiative.

Strategic Management

The North Dakota Department of Health (NDDoH) is in the process of completing a statewide Nutrient Reduction Strategy. The goal is to develop and implement cost-effective approaches in order to reduce the delivery of nutrients from point-source effluents and

—Continued on page 18



Some North Dakota farm fields need drainage to be productive while others benefit from irrigation—sometimes in the same year.



North Dakota contains about 2.5 million acres of wetlands, many in close proximity to farm fields.

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nonpoint source runoff.

“Overall, we are looking to reduce the amount of nitrogen and phosphorous entering lakes, rivers and streams, says NDDoH Division of Water Quality Program Manager Mike Ell. “This strategy lays out a plan for how we’re going about doing that.”

The process for developing a strategy has been ongoing for nearly five years. Ell says that NDDoH invited more than 30 organizations, including farm groups, industry and cities, to be part of the team defining the strategy, prioritizing watersheds, and identifying the criteria and targets to know when waters have improved to the point where they are meeting their intended uses.

A draft strategy has been submitted for internal review. Once approved, Ell says that there will be stakeholder meetings in order to obtain feedback and to identify activities for achieving nutrient-management improvements.

Ell says that, because agriculture is the dominant industry and land

use in North Dakota, nutrients from farm and ranch land are significant sources of nutrients.

“The strategy advocates more efficient use of nutrients; it doesn’t speak to reduction in the amount of fertilizer farmers need,” Ell says. “We are looking at practices that keep nitrogen and phosphorous on the field.”

Ell hopes to have the strategy finalized and ready to implement by fall.

Farmer Participation

Whether it is water quality, tile drainage or nutrient-management strategies, many issues surrounding North Dakota’s water resources are strongly tied to agriculture. To understand the issues and to have a voice in how to make improvements, most people believe farmers and landowners need to be part of the process.

“Ninety percent of North Dakota landowners lease or use the land for agricultural production,” Korom says. “If that’s the case, they need to participate as a stakeholder in North Dakota water-quality programs.”



Areas of high-saline soil plague many farmers across North Dakota, an issue often tied to high water tables.

“It’s important for future sustainability that farmers are involved to keep water healthy for animals, irrigation and improved quality of crops,” Podoll says. “It’s also important because people not in agriculture are watching. If farmers are involved, it tells a good story that farmers aren’t just producing; they take care of the resources and that’s important to everybody.”

Korom says that the days of individual farmer voices carrying a lot of weight with water-quality issues are likely past. It’s necessary for agriculture groups to speak with a unified voice.

“There’s no question that agriculture uses huge quantities of nutrients,” Korom says, “but

farming isn’t the only cause of our issues. We’re not the only ones in this game.”

Pederson says that the NDSGA is well aware of the state’s water challenges as well as the value of being part of the solution.

“We need to be at the table because, at times, we are asking for policy changes. The public makes policy changes, so they need to understand what we are doing, and we need to understand their concerns,” Pederson says. “We’re never going to make everyone happy, but if we sit down civilly, it’s very likely an understanding or some middle ground can be reached.”

—Story and photos by Daniel Lemke

North Dakota Water Facts

- Water covers 1,403 square miles, or about 2 percent of North Dakota’s surface area.
- North Dakota lakes and reservoirs total nearly 863,000 acres.
- There are approximately 2.5 million acres classified as wetlands in North Dakota.
- North Dakota’s major rivers, and their tributaries, total approximately 5,100 river miles.
- The Sheyenne River is 506 miles long, making it the longest river in North Dakota.
- Ninety-four percent of the cities in North Dakota rely on ground water from municipal systems, private wells and rural water wells.
- Sixty percent of the total water consumed in North Dakota is for irrigation.
- Five percent of the state’s population, or about 32,000 people, live in a flood plain.

—Source: ND.gov

Growers Promote Proactive Policy

Several water-related resolutions originating with North Dakota soybean farmers have been adopted by the American Soybean Association (ASA).

As a policy organization, the North Dakota Soybean Growers Association (NDSGA) works on behalf of the state's soybean farmers. The NDSGA efforts include pushing for common-sense policies that offer farmers the freedom to operate while preserving resources. For the NDSGA, some of those efforts revolve around water.

"I think some aspect of water comes up at nearly every board meeting," says Rolette, North Dakota, farmer and NDSGA Director Ryan Pederson.

Farmed Wetlands

The NDSGA put forward a resolution for the ASA to support a decision held by the U.S. District

Court for the Eastern District of California which rejected the USDA's interpretation that a participant who has converted a "farmed wetland" by improving yield or reducing crop stress through water management where the production of a commodity was viable prior to the drainage manipulation of the "farmed wetland."

The U.S. district court questioned the validity of the USDA's regulations that limit the use of "farmed wetlands." The court held that Congress plainly provided that someone "converts" a wetland and thereby becomes ineligible for federal farm-program benefits only by manipulating land to make the production of an agricultural commodity possible on a "farmed wetland" where it previously was not possible. The district court rejected the USDA's use of the



North Dakota delegates debate resolutions at Commodity Classic.

standard "more possible" to make participants who reduce crop stress and improve yield by improving drains constructed prior to December 23, 1985, ineligible for benefits.

Wetland Setback

The ASA recommends requiring the U.S. Fish and Wildlife Service (USFWS), when administering USFWS wetland easements, to use Natural Resources Conservation Service (NRCS) guidelines when determining applicable setback distances from wetlands and when selecting mitigation options for drainage projects.

Current law does not contain

an administrative process by which landowners can submit a proposal about drainage on their property to the USFWS for review and a determination of whether the proposed drainage will impact, drain or convert wetlands that are protected under the USFWS's waterfowl production area or other conservation easements. The USFWS cannot prevent landowners from managing water on their property as long as the wetlands-covered by the federal easement are not affected. However, the USFWS currently requires a setback distance that is 3 or more

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Get Ready to Corner the Market

NDSC Market Outlook for Soybeans

July 27, 2017 • 10 a.m. – 3 p.m. • NDSU Barry Hall • 811 2nd Ave N • Fargo, ND

Join North Dakota Soybean Council for a mid-season outlook at the soybean markets and discussion of marketing strategies prior to harvest. Dr. Bill Wilson and Dr. Frayne Olson will discuss

how the season is progressing, the South American crop, world demand and walk producers through marketing strategies and risk management options for the soybean harvest.



NDSU

Free for ND Soybean Producers • Registration Required by July 20

Contact Stephanie Sinner:
(701) 239-7194 • ssinner@ndsoybean.org



Dr. Bill Wilson



Dr. Frayne Olson

North Dakota Soybean Council • 888-469-6409 • ndsoybean.org

North Dakota Soybean-Producer Survey: Preliminary Results

Data collected from 829 soybean fields during the 2014-16 growing seasons were used for this article (Figure 1). This update only evaluates a limited number of management practices. Further data analysis will take place and will be reported at a later date. The North-Central Soybean Research Program (NCSRP) funded this research.

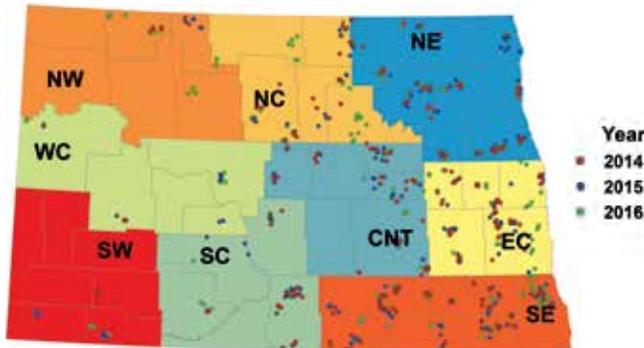


Figure 1. The 2014-16 surveyed fields by their USDA/NASS agricultural region.

Planting date

Planting soybeans prior to May 15th resulted in higher yields compared with the 2014-16 survey average of 40.7 bushels per acre. Planting the first week in May (1-6) yielded 46.2 bushels per acre; seeding the second week in May (7-12) averaged 43.4 bushels per acre; and planting later than May 19 yielded less than 39.0 bushels per acre. However, producers will need to consider the soil and weather conditions before starting the soybean planting (Table 1).

Seeding rate

Eastern North Dakota farmers reported the soybean seeding rate used for each field. The highest yield was obtained between

165,000 and 170,000 planted seeds (Table 2). This would result in approximately 150,000 established plants per acre, assuming that about 10-14 percent of the seeds will not become an established plant.

Seed treatments

Averaged across 2014-16, seventy-seven percent of the growers used seed treatments and had a soybean yield of 40.9 bushels per acre. About 15 percent of the growers did not use seed treatments and, on average, had a yield of 39.9 bushels per acre. Approximately 8 percent of the growers did not report if a seed treatment was used.

Conclusions based on the 2014-16 growers' soybean survey data are as follows:

Table 2. Soybean seeding rate and yield (bushels per acre) for eastern North Dakota.

Average seeding rate 2014-16	Number of Fields Surveyed	Yield in bushels per acre 2014-16
140,000	14	38.1
148,000	44	42.0
158,000	106	42.2
165,000	89	43.7
170,000	46	44.0
180,000	182	42.3
<185,000	24	39.5

1. Planting soybeans before mid-May, if conditions are favorable, may provide higher soybean yields.
2. Seeding 165,000 to 170,000 seeds per acre provided the highest yields in 2014-16. North Dakota State University (NDSU) recommends aiming for 150,000 established, evenly distributed plants per acre.
3. Row spacing between 15 and 22 inches provided the highest yields in 2014-16. The 30-inch row spacing had the lowest yield.
4. Growing soybeans after corn or wheat in eastern North Dakota resulted in up to 2.8 bushels per acre higher yield compared with growing soybeans after soybeans.
5. Seed treatments resulted in higher yields from 2014-16.
6. Planting varieties with the appropriate soybean maturity group will optimize yield (Figure 2).

Additional completed producer surveys for 2014-16 fields are still being requested. The team is preparing for the 2017 in-season field visits. If you would like to participate by contributing survey data or want to make your fields available for observation during the summer, please contact J. Stanley at j.stanley@ndus.edu or (701) 231-7825.

—Story and graphs by J Stanley, ND Soybean Survey Coordinator and Hans Kandel, NDSU Extension

Table 1. Yield (bushels per acre for soybean planting weeks during the 2014-16 growing seasons.

Planting Timing (6-day weeks)	Number of Fields Surveyed	Yield in bushels per acre 2014-16
Last week in April	10	35.4
First week in May (1-6)	125	46.2
Second week in May (7-12)	113	43.4
Third week in May (13-18)	131	41.5
Fourth week in May (19-24)	208	39.0
Fifth week in May (25-31)	150	38.0
First Week in June (1-6)	59	37.8
Second Week in June (7-12)	30	36.7

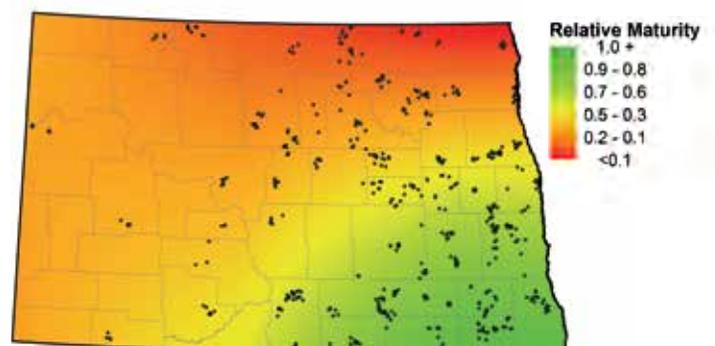


Figure 2. Relative-soybean-maturity groups grown in North Dakota as reported by surveyed growers, 2014-16.



Soybean-Seed Inoculation Strategies with Prior Production History

Soybean seeds need to be inoculated with *Bradyrhizobium japonicum* bacteria in order to allow plants to produce most of the nitrogen that is required for seed production on fields with no prior soybean production. Also, if there are more than three years between soybean crops, seed inoculation is recommended by North Dakota State University (NDSU).

After at least one year of soybean production in a field that included plants with effective nodulation, will continued seed inoculation increase yield? Averaged over 11 NDSU trials on ground that previously grew soybeans, yield increased by 0.5% with inoculated seed compared to the non-inoculated seed.

A common strategy is to “double” inoculate soybean seed on new ground by using two inoculate formulations, typically liquid and granular, at one-half to full labeled

rates for each one. If a farmer chooses to use inoculant for a field with prior soybean history, should the seed be double inoculated? The results of three site-years of NDSU research conducted at Carrington and Wishek during 2015-16 are illustrated in the figure to the right. Averaged across trials, the data indicate that there is no advantage with single or double inoculation compared to the untreated check. Also, averaged across the three site-years, seed protein tended to slightly increase with seed inoculation compared to the untreated check.

In eastern Manitoba, 25 replicated, on-farm trials were conducted during 2013-15, comparing double- vs. single-seed inoculation for soybean fields that had at least two previous soybean crops. Overall, a significant and economic yield response to double inoculation occurred with 2 of the 25 trials (8%

Soybean seed yield and protein with bacteria inoculation of seed options on ground with previous soybean production, Carrington and Wishek, 2015-16 (3 site-years)

Inoculation option	Seed yield (bu/A)				Seed Protein (%)
	Carrington 2015	Wishek 2015	Wishek 2016	3-year average	3-year average
Untreated check	30.8	22.4	57.6	36.9	35.1
Liquid	28.7	22.2	56.7	35.9	35.8
Granular	25.3	24.5	56.8	35.5	35.5
Liquid + Granular	27.1	25.4	58.0	36.8	35.6
LSD (0.05)	NS	NS	NS	–	–
Prior year with soybean	2013	2013	2014		
Prior year with soybean	1	2	2		

of the time).

The Manitoba Pulse and Soybean Growers Association has the following checklist to help farmers determine if single

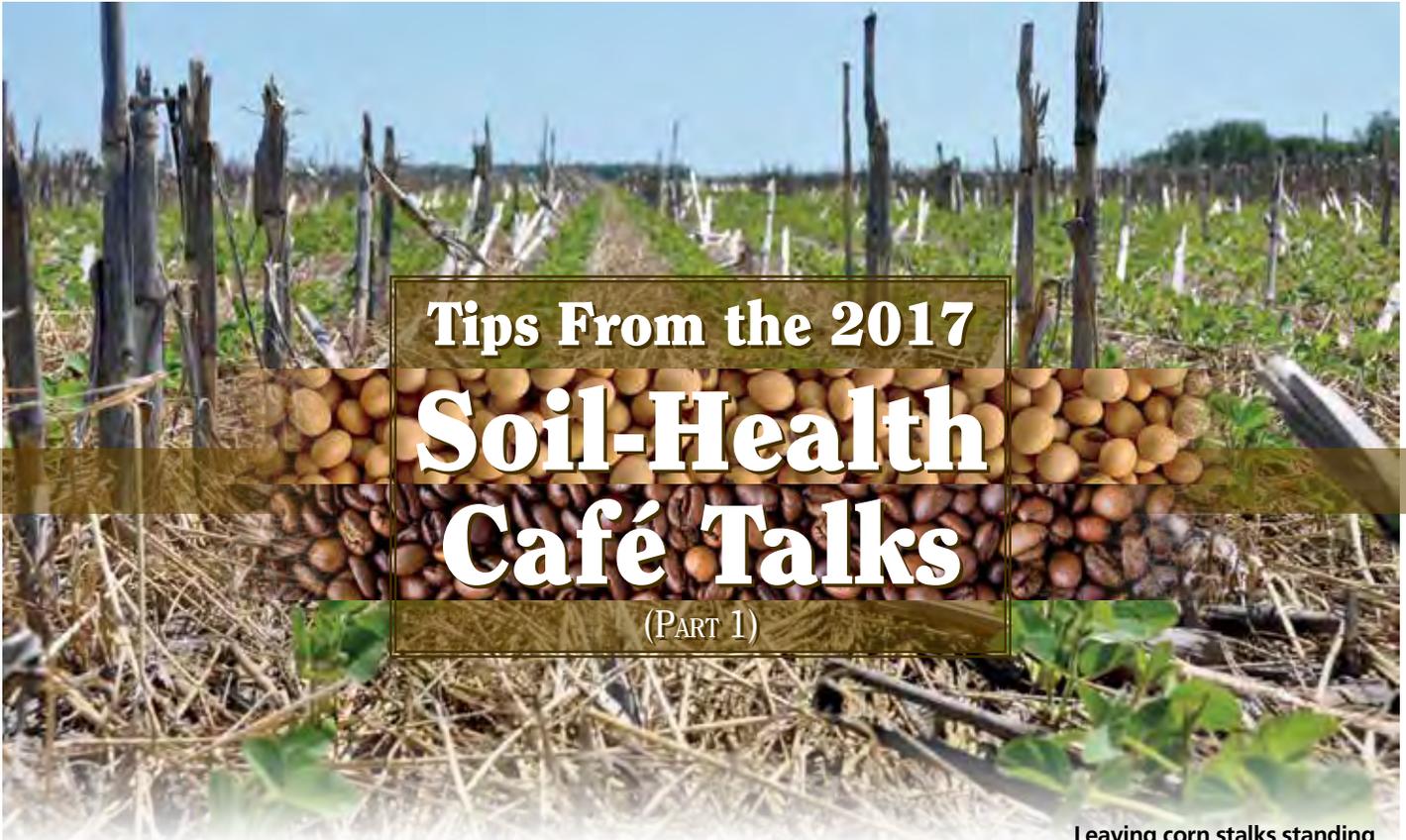
inoculation will likely provide an economic return for fields that had prior soybean production. Note that all four factors must be met in order to single inoculate the soybean seed.

1. The field has had at least two previous soybean crops.
2. Previous soybean crops had plants with well-nodulated root systems.
3. The most recent soybean crop was within the past four years.
4. There is no significant field flooding or drought.

—Story and photo courtesy of Greg Endres, NDSU Carrington Research Extension Center



Soybean plant with well-nodulated root system.



Tips From the 2017 Soil-Health Café Talks (PART 1)

The Soil-Health Café Talks have been a staple of the SHARE Farm outreach program since January 2014.

Leaving corn stalks standing and increasing residue on the soil surface will help maintain moisture later in the growing season for soybeans.

These commodity-funded informal discussion groups started with a farmer sharing with me, “I really like these large field days, but I need information in a low-key way to be able to ask questions and hear the info multiple times. Not only from NDSU but other farmers who are using these practices.” This statement makes complete sense; I learn the same way.

What this farmer said has led to the Soil-Health Café Talks which occur in multiple locations: same time, same place, every other week in January and February. We have held these café talks in Cass (2016), Grand Forks (2015, 2016), Lamoure (2017), Nelson (2017), Ransom (2017), Richland (2014, 2015, 2016, 2017), Sargent (2014, 2015, 2016, 2017) and Traill

(2015) Counties. A colleague from NDSU joins me each time, and we cover topics such as fertility, livestock, economics, climate, plant disease and weed management. Farming is a system, so we approach it that way by talking about practices as a whole rather than the pieces.

I will share tips from what we discussed this past winter to spur new ideas and start conversations. Caley Gasch (soil health), Marisol Berti (forage/cover crops), Daryl Ritchison (climate/NDAWN), Dave Franzen (soil fertility), Jay Goos (soil fertility/IDC), Miranda Meehan (livestock) and Mary Berg (manure/compost management) joined the discussion at several different locations this year. In this issue, I will focus on soil health, cover crops and climate. In the next

issue, I will cover soil fertility/IDC, livestock and manure management.

Soil Health

Multiple times, Caley Gasch was asked for her opinion about the

effectiveness of biological products. The market is flooded with these products that claim to solve many soil issues and to increase yield. Keep in mind that (1) these prod-



Fall establishment of cover crops flown in into soybean crop before leaf drop.



ucts have not been independently tested and that (2) microbial communities in the soil are very difficult to understand, measure and manipulate. Biological products will not solve salinity issues, and any fertility benefit will likely be short term and require multiple applications. Consider the costs of the products and their application relative to any perceived yield increase.

Our advice: if you want to restore or maintain biological activity and a diverse microbial community in order to achieve goals of efficient nutrient cycling or to help build soil structure (as examples), provide a good habitat for soil biota to thrive. This includes good soil structure (for air and water flow), reduced disturbance (physical and chemical), and a food source (plant roots, residue, organic matter) for as much area as possible for as long as possible. The best adapted soil microbes for your soils are the ones that are already there.

Cover Crops

At every café talk, I was asked about cover crops, and when Marisol Berti came to Lakota, it

was, again, a hot topic. It is much easier to pick a cover-crop mix knowing these three things: (1) What do you need the cover crop to do? (2) What was your previous crop? (3) What crop will you be planting next? Here's an example. For the goal of managing water, cereal rye is a good option for your mix because it is extremely flexible and will overwinter to use moisture in the fall and again in the spring. Cereal rye can be interseeded into corn; it can be flown on into soybean before leaf drop, drilled after harvest and included in a mix after wheat. When considering crops in rotation, NEVER use cereal rye before wheat, and you need to be cautious when using cereal rye before corn by terminating the rye 14 days before planting corn.

Our advice: Cover crops are most effective when you select mixes based on goals. This way, you can measure the cover crops' successes or failures and can tweak your mixes to meet your goals. Keep it simple; learn from others; and try the approach on small areas when getting started.



Difference in snow catch on chisel plowed field, left, and standing corn stalks, right.



Caley Gasch, second from left, talks about the importance of soil conditions for microbial communities.

Climate/NDAWN

At the café talks Daryl Ritchison attended, we covered the transition from a wet cycle to a dry cycle. It's inevitable that this change will happen, and we will need to shift our management from water usage to water storage. One tool that helps us to understand the conditions are the soil moisture sensors that are now at several NDAWN stations (ndawn.ndsu.nodak.edu). As far as the practices being used to meet changing climatic conditions, we need to be cautious with our use of cover crops by selecting mixes and rates that fit the conditions as well as managing residue to meet goals.

Our advice: With cover-crop selection, we might shift from winter annuals (such as cereal rye) to cover crops that do not overwinter. This may include using oats or barley versus cereal rye to give us residue cover to conserve moisture, but not have spring water usage. If cereal rye is desirable in the mix in order to control weeds or because it fits with the farmer's system, then seeding rates can be lowered. Termination timing for the cover crops in both the fall and spring may be another

consideration. If cover crops are using too much moisture after their maturity in fall, then they can be terminated. The same thing is true in the spring when using cereal rye (for example); monitor conditions to make sure that the soils don't dry out too much.

Residue management will likely include upright, rigid residue to capture snow and to recharge moisture throughout the soil profile. For example, turning off the corn-chopping head to leave upright stalks and using a stripper head on wheat would achieve this goal. Cover crops may also be selected based on the level of residue that they produce as well as the residue structure.

These ideas are just some tips from the Soil-Health Café Talks. Be sure to find more tips in the next issue. For more information, visit the NDSU Soil-Health Webpage (ndsu.edu/soilhealth) or follow Abbey Wick on Twitter (@NDSUsoilhealth).

—Story and photos by
Abbey Wick, NDSU Extension
Soil Health Specialist



Inaugural Natto Summit Held in Fargo

The first Natto Summit was held in Fargo on March 14th and 15th. Approximately 40 people attended the two-day summit that included representatives from the natto manufacturing industry in Japan and the U.S., regional suppliers of natto soybeans, representatives from the soybean-breeding industry, and representatives from the ND and MN Soybean Councils.

The purpose of the event was to discuss the supply chain challenges as well as the opportunities in the natto industry. The event also allowed suppliers to highlight the significance of the Red River Valley to the natto industry. This event was filled with presentations from all supply chain stakeholders, tours of the processing facilities, tours of the NCI soybean lab and panel discussions.

Natto soybean production from North Dakota and Minnesota is

extremely important for Japan's natto manufacturers.

- This region supplies about 60 percent of the natto used in Japan.
- This region accounts for nearly 80 percent of all the natto that is imported into Japan.
- Because we compete for market share in this industry with Ontario, we clearly highlighted that this region has about 3 times the soybean acres of Ontario and that the region's suppliers are well positioned for growth opportunities.

With today's ever-increasing awareness and the demands of food safety and traceability, it is important for all supply chain stakeholders to build trust and industry awareness by coming together and having an open discussion as well as providing a level of transparency.



Attendees of Fargo Natto Summit

This event was very unique because it was the first of its kind in this industry. The 2018 Natto Summit will be held in Japan.

A very special thank you and appreciation go to the event sponsors: the North Dakota Soybean Council, Minnesota Soybean Research and Promotion Council, Wisconsin Soybean Marketing Board, U.S.

Soybean Export Council (USSEC) and Northern Food Grade Soybean Association. A special thanks go to the Northern Crops Institute for hosting this event.

—Story by Curt Petrich, Northern Food Grade Soybean Association, photo by Betsy Armour, Northern Crops Institute

Farewell and Best Wishes to Intern Elli Lemm

At the end of April, the North Dakota Soybean Council (NDSC) bid farewell to Marketing Communications Intern Elli Lemm. She graduates from NDSU in May with a major in agricultural economics and a minor in agricultural communications. Elli represents the fourth generation of NDSU graduates in her family. Along with her father, mother, grandfather and grandmother, her great-grandmother also graduated from NDSU.

Lemm grew up on a diversified farm near Hillsboro, North Dakota. She has been working on the family farm her entire life. She helps with planting, harvesting and working with the cattle. The NDSC sincerely thanks Elli for all her help and hard work during the last year. She was a huge asset to NDSC's office team.

Congratulations and best wishes Elli!

—Story and photo by Staff



Elli Lemm



JOIN THE Conversation WITH CommonGround N.D.



CommonGround North Dakota volunteers, from left to right: Courtney Qual, Julie Tunseth, Val Wagner, Michele Bartholomay and Julie Peterson.

The setting was storybook perfect: rustic lodge, hardly a cloud in the sky, a light breeze at best. Then, as the food was served, all the guests realized just how special the evening would be. The first Farm-to-Table dinner at the Coteau des Prairie Lodge in Havana, North Dakota, was a smashing success by all accounts. The event was held with a collaborative effort from the lodge, CommonGround North Dakota and AgWeek.

The evening not only celebrated local foods and crops grown in this tri-state region, but it also had knowledge and education because the lodge owners, the Breker family, brought a few experts to talk about soil health and to physically show the guests what soil looks like up close. Imagine being able to look at soil microbes on a big-screen television while the soil scientist is explaining their importance and what they do for soil health! It was

definitely a night to remember.

Between each course on the five-course local menu that was served, a little lesson or explanation was given. It was a perfect combination of social celebration, high-class cuisine and agriculture education, all rolled into one evening.

The menu was a labor of love, featuring some amazing local fare and libations from Breker dry-aged beef, to fresh radish greens, to roasted malting barley, to soy ice cream. The talent and vision of Chef Steve Schulz from the Toasted Frog in Fargo were exceptional, featuring our local foods in ways that were fresh and unexpected. It was a treat for the eyes with the breathtaking scenery and a treat for the tastebuds to experience the talent showcased with every course.

CommonGround volunteers were on hand to not only assist with serving the meal, but also to have conversations regarding their

own farms and involvement with agriculture, giving an opportunity for guests to make connections with the farmers who are directly involved in raising the food. Many people left with not only a food experience that they will likely not forget, but also a closer connection and appreciation for the bountiful harvest that this country is blessed with because of the hard work that happens on the farm.

These types of events are ones that CommonGround would like to see occurring across the state:

opportunities for people with questions about their food to talk with the individuals who actually raise it. If you would like to see such an event in your area or would like to become a volunteer, contact CommonGround coordinator Val Wagner at wagntales@gmail.com.

—Story and photo by Val Wagner, CommonGround North Dakota

—Continued from page 12

high-bypass feed to Mexican dairies and other countries around the world.

“We’re always striving to expand markets and our presence,” Von Seggern said. “There will always be changes in the political landscape, but we’ll always focus on maintaining strong partnerships with our customers. Despite all the political

rhetoric, we have a high regard for our customers, and that will never change.”

Saul Cabrera Salas, feed-mill manager for Empresas Guadalupe, said that he prefers to buy soybeans and soybean meal from the U.S. because of the price, the ease of delivery by train and the quality. He is concerned about the future.

“We’re still nervous about what

President Trump suggested,” Salas said. “But we’re very pleased with U.S. soybean meal, its consistency and high quality. We’re very happy to buy from AGP.”

Empresas Guadalupe purchases 110,000 tons of soybean meal that are made from 5.1 million bushels and 2.6 million bushels of soybeans each year. Last year, 80 percent came from the U.S. This year, all

soybean meal, so far, was purchased from AGP.

“Right now we’re cautious,” Salas said. “We’re expecting nothing will happen, and we’ll still be buying.”

—Story and photos by Matthew Wilde, Iowa Soybean Association



Cardiac Ready Communities Project

Every 40 seconds, someone in the United States dies of heart disease, totaling approximately

2,150 deaths each day. In North Dakota, more than 1,600 people die of heart disease and stroke each year. However, 80 percent of those deaths could be prevented.

One of the keys for preventing death and disability from heart disease and stroke is a timely response to critical medical emergencies, such as sudden cardiac arrest, heart attack and stroke. However, in rural North Dakota, there can be time delays before first responders arrive at the scene in time to help patients.

The typical “Chain of Survival” for cardiac and stroke emergencies starts with the immediate recognition of cardiac arrest, activation of the emergency-response system, early CPR and rapid defibrillation.

These initial steps in the chain depend on the presence of trained bystanders, individuals who can identify and react appropriately to a sudden cardiac emergency.

In an effort to strengthen these important links in the Chain of Survival, the North Dakota Division of Emergency Medical Systems partnered with the American Heart Association to develop and implement the Cardiac Ready Communities program which aims to help rural communities prepare to respond and assist if an individual has a cardiac event.

“Seconds matter when a neighbor, co-worker or family member has a cardiac event, and in rural North Dakota, there can be time

delays before first responders can arrive on the scene,” said Jeff Sather, M.D., North Dakota’s state medical director. “No one should lose a loved one because no one nearby knew how to help. Communities working together to create a chain of survival can make all the difference in whether a person survives a heart-related emergency and with less heart damage.”

The Cardiac Ready Communities project was first launched through a 2015 pilot initiative in Powers Lake. Powers Lake Ambulance crew members Jake Douts and Kari Enget served as community co-chairs for the effort. “All of these small towns in rural North Dakota need to have bystander CPR and AEDs (automated external defibrillators) available,” said Douts. “Our goal is to ensure that, in our community, if anyone has a cardiac emergency, there will be someone close by to help and take care of them.”

The Powers Lake project included several elements that were designed to improve the town’s ability to respond to cardiac emergencies. The project steering committee had a cross-section of the community, including worksites, faith-based organizations, city leadership, farmers, fire and EMS. With a series

of community events and activities during the project’s initial months, Powers Lake was able to train more than 200 individuals to perform CPR and placed 24 AEDs throughout the community.

With the initial success of the Powers Lake project, the North Dakota Department of Health opened the program to additional communities, and to date, 13 groups covering 16 North Dakota communities have filed letters of intent to become Cardiac Ready Communities.

To become a Cardiac Ready Community, a town must achieve a set of minimum criteria which support the chain of survival, including CPR instruction, public access to AEDs, hypertension screenings, and resuscitation protocols and transport plans for first responders and area hospitals.

“We need leadership, and depending on the community, they can set that up how they want to. If they have medical people, such as hospital or ambulance service, certainly they are key players,” said Dr. Sather. “Also, Chamber of Commerce, church groups, civic organizations, all of that can be involved in that leadership in the community.”

During the 2017 North Dakota



Cardiac Ready Status: ● Cardiac Ready ● Letter of Intent



Legislature, House Bill 1210 was passed and created a Cardiac Ready Communities grant program within the state's Department of Health. The purpose of the grant program was to enable the North Dakota Department of Health to secure funding for the Cardiac Ready Communities program from outside sources and to distribute

funds to communities that were seeking assistance with implementing aspects of the project. The grant program also allows the Department of Health to initiate a bid process in order to reduce the cost of AEDs for communities that are working towards the Cardiac Ready Community designation.

Dr. Sather believes that the Car-

diac Ready Communities project is a great way to continue the progress that has already been made in recognizing and treating heart disease.

"I expect, even in our rural states—in North Dakota—we will see, within a few years, heart disease may not be the number one killer anymore," Sather said, "because we are making such great strides in re-

ducing deaths from cardiac disease."

For more information about the Cardiac Ready Communities project, visit the North Dakota Department of Health's Division of EMS & Trauma website at www.health.nd.gov.

—Story and graphics
courtesy of Chrissy Meyer,
American Heart Association

Start Your GRILLS!

The weather is turning warmer. The spring flowers and beautiful budding trees are a stunning splash of color. Farmers are thinking about

planting their fields. It must be time to start the grills in order to celebrate the spring as well as Memorial Day and Father's Day.

Basil Lime Dressing



Dressing Ingredients

¼ cup + 2 tablespoons soft, silken tofu
2 tablespoons plain Greek yogurt
1 teaspoon lemon juice
1½ teaspoons lime juice
2 green onions, chopped
¼ cup + 2 tablespoons fresh basil leaves, chopped
2 tablespoons Parmesan cheese, grated
1 tablespoon Dijon mustard
Pinch of black pepper, to taste

Salad Ingredients

Romaine hearts

Watermelon, cut into matchsticks

Fresh blueberries

Chopped pecans

Cucumber, cut into matchsticks

Strips of fresh basil

For the dressing

In a food processor, add all the ingredients. Pulse until very smooth. Use immediately over the salad.

For the salad

In a large salad bowl, add all ingredients; toss.

Yield

½ cup dressing

There is nothing like the smell of food grilling. Do you have carnivores and vegetarians at one table? Here are some simple ideas to make the meal easy. Shish kabobs are easy to make, add great color and are flexible. Make shish kabobs with bite-size pieces of beef or chicken; add green and red pepper chunks, mushrooms and onion quarters for the meat lovers. The night before, take extra-firm tofu and cut it into bite-size pieces; marinate it with soy sauce and a marmalade or honey. When ready to grill, thread the tofu with desired vegetables onto the skewers. Brush all the shish kabobs with soybean oil, and place them

on the grill. Grill the kabobs until the meat is the desired doneness and the tofu and vegetables are nicely browned. Voilà, you have a meal that everyone can love. Make a delish watermelon and blueberry salad, and serve decadent chocolate brownies. This food is perfect for the upcoming celebrations.

Soy protein is heart healthy, is low in saturated fat and has no cholesterol. It is very easy to add soy protein to every meal.

Enjoy the warm weather and the grilled foods!

—Story, recipes and photos by
Linda Funk, The Soyfoods Council

Chocolate Soy Brownies

Ingredients

½ cup butter
1 cup sugar
4 eggs, beating after each
1 teaspoon vanilla extract
1 can (16 ounces) chocolate syrup (1½ cups)
¾ cup all-purpose flour
½ cup soy flour

Directions

Preheat oven to 350 degrees.

To prepare the brownies, beat the butter, sugar and eggs with an electric mixer until smooth. Add the vanilla and chocolate syrup; stir well. Add the flour and soy flour; stir well. Pour the batter into a 9-inch square pan that is coated with cooking spray. Bake 20-25 minutes.



A Long View

Even though he's been farming for 42 years, Carrington, North

Dakota farmer Charles Linderman says that there are many reasons why he's not quite ready to hang up the work boots.

"I'm way past being old enough to retire," Linderman says, "but I can't yet because I've got a lot of new ideas I want to try."

Linderman grew up farming in the Carrington area. He earned a degree in agricultural engineering from North Dakota State University. After working for several years, he returned to farm ground near where his grandfather had broken the prairie sod.

"When I started, the retired farmers I rented ground from all said that, the more you till, the better farmer you are," Linderman recalls. That's no longer the prevailing attitude. "I'm cutting down on tillage. The old moldboard plow is probably rusting in the weeds out back."

Like many farmers, Linderman

has tweaked his practices over the years in order to be more productive while stewarding natural resources. He's gradually reduced the amount of tillage he does in an effort to boost soil health. The third-generation farmer raises hard spring wheat and soybeans, most of which are food-grade varieties. He's also grown a wide variety of specialty crops over the years, including barley, flax and sunflowers.

Linderman is intent on increasing crop diversity for the ground he farms and has researched options, including incorporating cover crops into his rotation. He understands the role that diversity plays in soil health and how healthy soils are connected to protecting water resources.

"I'm looking at developing a more diverse crop rotation, but it has to be something I'm able to sell because we still have to pay the bills," Linderman says.

Contending with Water

Linderman says that, since 1993, his area south of Devils Lake has seen above-average rainfall. What used to be considered semi-arid ground is now regularly wet, particularly early in the year.

"There are a lot of places where there is too much water in the spring, but by summer, we need to irrigate," Linderman says. "I'm working to increase the organic matter in the soil because that will help store moisture for later."

In addition to reducing tillage and working to increase the soil's organic matter for water-holding capacity, Linderman has left native sod in place to prevent the soil and nutrients from washing off a hillside into a nearby creek. He's also seeded grasses farther up the slope. The buffer area isn't required, but it does fit his nutrient- and water-management strategy.

Linderman says that he has paid

more attention to agricultural water in recent years because it's becoming an increasingly important issue in North Dakota. He also knows that soil health and water quality are connected.

Linderman says that his four decades of farming experience have allowed him to do what he likes best, planting and harvesting a bountiful crop. The years have not dampened his curiosity to learn more about the resources upon which he depends.

"When I was a senior in high school, the English teacher had us research and write a theme paper," Linderman recalls. "I wrote mine on the composition of soil."

More than 50 years later, the topic is still important. "I want to leave the soil healthier than when I started," Linderman says.

—Story and photos by Daniel Lemke



Carrington farmer Charles Linderman has been actively farming for more than 4 decades.

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—Continued from page 19

times greater than the setback distance required by the NRCS. Additionally, there is no administrative appeals process where the USFWS position on the wetlands covered by the easement, the appropriate setback distance or the value of mitigating the covered wetlands can be reviewed by an independent party.

“We have two government agencies with environmental standards that have very differing opinions on setbacks and handling,” Pederson says. “All land in government farm programs is under NRCS jurisdiction, so it makes sense to use their setback standards.”

USFWS Easements

The ASA supports Congress requiring the USFWS to offer landowners who have property that is burdened by USFWS waterfowl production-area easements the opportunity to purchase releases for those easements.

Congress authorized the USFWS to purchase waterfowl production-area easements in the 1960s. The USFWS concentrated its purchases in the northern reaches of the prairie-pothole region.

Pederson says that the resolution is intended to provide potential funds for higher-quality waterfowl easements by allowing farmers to buy back easements on lesser-quality parcels.

“There are people who want to put land into easements, but there aren’t enough funds for it. If I have a low-quality easement, I could buy out that easement, and those funds could be used to put into better-quality wetlands,” Pederson says.

The resolutions, approved at the Commodity Classic in March, will now be used by ASA directors and farmer-leaders when meeting with lawmakers.

—Story by Daniel Lemke,
photo by Nancy Johnson

Return on Conservation Investments

Most farmers know that there are areas in some fields that just don’t pull their own weight. Despite a farmer’s best efforts, some spots just don’t produce. Those areas are not only unproductive, they may also be costing farmers money and affecting profitability.

A pilot project, coordinated by Pheasants Forever, is working to show how much those areas cost farmers and how converting the areas to a conservation planting could result in a positive return on investment while yielding an array of other benefits.

Pheasants Forever State Coordinator Rachel Bush said that the pilot project builds on a program that started in Iowa. The program moved into North Dakota in 2016, beginning with Sargent and Ransom Counties. The program later expanded to include Dickey and LaMoure Counties.

Working jointly with the North Dakota Department of Health and the 319 Program, Pheasants Forever helped to buy down the subscription cost of AgSolver’s Profit Zone Manager technology platform for participating farmers in certain watersheds. AgSolver focuses on quantifying the return on investment at a sub-field scale.

“We want to identify areas where farmers are consistently losing money,” Bush said. “Farmers know where their trouble spots are, but this shows them what it costs to continue to farm them.”

Bush said that the AgSolver platform can compare current land use with other potential applications, such as grass plantations or Conservation Reserve Program (CRP) enrollment. The farmers receive a business performance analysis that compares the return from land when it is in farm production and what would happen if it were removed from produc-

tion in favor of a conservation planting.

“If the poor-performing acres are removed, farmers might have more capital to make their productive acres more productive,” Bush added. “We can see how much profitability improves if farmers take those areas out of agricultural production.”

Jerome Freeberg farms in Ransom County near Lisbon, North Dakota. He was part of the pilot project which began in 2016. Freeberg said that his farm has areas with high soil salinity. Finding better ways to use those areas while managing salts could be beneficial.

“The program didn’t tell us anything we didn’t already know, but it does help put numbers to it,” Freeberg explained. “It put value to how much loss there is, so we could see if we need to do something.”

Freeberg said that he is considering options about what to do with the trouble spots that were identified. Possibilities include seeding the area to grasses or alfalfa.

Bush explained that, so far, seven farmers have participated in the program that started in July 2016. She said that some participating producers have identified revenue-negative areas and have either made changes or are pondering the next steps.

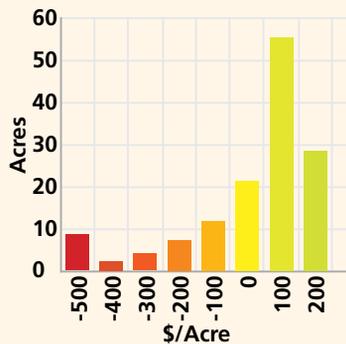
“We want to show farmers that adopting conservation practices on some acres can improve their profitability,” Bush said. “Additional benefits would include improved soil health and water quality as well as wildlife habitat.”

Bush explained that Pheasants Forever has put in a grant request for funds to expand the number of farmers who can participate in the program.

—Story by Daniel Lemke,
graphics courtesy of Pheasants Forever

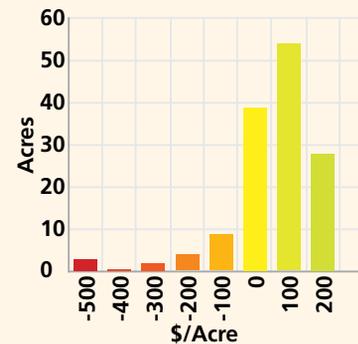
Scenario: Actual Production 2014

Field Acreage	139.9 ac
Average Yield	168.9 bu/ac
Profit	\$8.33/ac
ROI	1.3%
Production Efficiency	254.0 bu/\$1000
Acreage Opportunity Ratio	31%
Breakeven Commodity Price	\$3.94
Total Field Expenses	\$93,033.50
Total Field Revenue	\$94,198.67
Total Field Profit	\$1,165.17



Scenario: CRP 2016 Using 2014 Corn Data

Field Acreage	139.9 ac
Average Yield	180.9 bu/ac
Profit	\$49.61/ac
ROI	8.5%
Production Efficiency	309.5 bu/\$1000
Acreage Opportunity Ratio	19%
Breakeven Commodity Price	\$3.23
Total Field Expenses	\$81,800.92
Total Field Revenue	\$88,741.39
Total Field Profit	\$6,940.47



Driving Conservation Decisions

For farmers to change their practices, there usually needs to be a good reason. Annual decisions, such

as seed-variety selection, fertility plans and crop rotations, are largely based on results, research, experience and yield history. Those adjustments are made to increase productivity and profitability.

What goes into the decisions to make changes that impact conservation? Researchers wanted to find out what drives farmers in the Red River Basin to change how they operate.

University of Minnesota Associate Professor and Director of the Center for Changing Landscapes Mae Davenport worked with the Regional Sustainability Development Partnership and the North-west Minnesota Foundation to discover what drives landowners to make conservation decisions and what holds the landowners back.

“There’s a lot of bioscience done on conservation and water quality, but there’s not a lot of understanding from the farmer-producer perspective,” Davenport said. “We needed to get insight from farmers to help design policies and practices.”

A Social-Science Study

Davenport and her colleagues conducted a social-science assessment of conservation action in the Red River Basin. The project

sought to assess landowners’ and farmers’ values, beliefs, norms and behaviors that are associated with water as well as to determine how landowners and farmers make conservation decisions. The researchers held meetings and conducted surveys to obtain feedback from farmers who work in watersheds within the Red River Basin, including North Dakota.

Davenport explained how the work revealed that, not surprisingly, balancing productivity with conservation is a complex issue in the region.

“Most farmers have clear management goals. They want to be productive and profitable, but they also see themselves as resource stewards, so caring for soil and water are fundamental,” Davenport said. “A lot of them value wildlife habitat and want to do farming practices in a way that doesn’t contribute to soil and water degradation. We found a strong conservation ethic.”

Davenport said that conservation decisions aren’t just rational, they’re also moral. Davenport explained how the conservation ethic is innate for most farmers.

“Activating that ethic is important,” Davenport contended.

“Farmers are aware of the flooding and pollution in the basin and agriculture’s contribution to impairments. We did see a high concern for how their farms and future generations would be impacted by water-quality issues.”

The assessment showed that it’s not a matter of farmers not caring; the challenge lies in providing support and opportunities to make changes on the landscape. Davenport said that the assessment showed how many farmers felt stuck in an agricultural system that doesn’t allow for diversification. Some people felt the Farm Bill was a constraint to conservation adoption because it favors corn and soybean production. There were also limitations that squelch farmers’ ability to use their own ingenuity to address resource-management challenges.

Success Stories

Farmers have a nearly infinite number of places to get information about possible production practices that can affect soil health and water quality. What Davenport found is that farmers learn a lot from each other.

—Continued on page 32

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A Classic Perspective



As co-chair for the 2017 Commodity Classic, Milnor farmer Ed Erickson, Jr. (holding scissors) took part in the opening ceremony for the trade show.

Milnor, North Dakota farmer Ed Erickson, Jr. is no stranger to the Commodity Classic, but the

2017 event was different. For the past three years, Erickson, who serves as a director on the American Soybean Association (ASA) board, was on the Commodity Classic planning committee. For the 2017 event held in San Antonio, Texas, Erickson was the co-chair.

“Going into Classic as co-chair, you never want to be the one in charge when the wheels fall off,” Erickson said with a laugh. “With the way the farm economy has been, we were concerned we might have fewer people attending. It turns out we’re only a few hundred people short of a new attendance record.”

Total attendance for the 2017 Commodity Classic was over 9,300 people, the second-largest total in event history, second only to the 2016 Commodity Classic in New Orleans. Farmers represented nearly half of that total.

Established in 1996, the Commodity Classic is America’s

largest farmer-led, farmer-focused convention and trade show. It is produced by ASA, the National Corn Growers Association, the National Association of Wheat Growers, the National Sorghum Producers and the Association of Equipment Manufacturers.

The trade show featured 425 participating companies, filling over 2,200 booth spaces. The exhibitors represented a diverse range of technology, innovation, equipment, products and services.

Erickson has attended many trade shows as an equipment exhibitor, giving him a valuable view of the event.

“I had a unique perspective since I’ve been doing trade shows since 1982,” Erickson says. “I’m the only farmer and exhibitor who has been on the Commodity Classic committee, so I know what both the exhibitors and farmers need.”

While farmers can get the first look at some of the newest equipment and technology available for

their farm, Erickson says that the educational sessions were a huge draw as farmers grapple with ways to increase profitability.

“Education is a hallmark of Commodity Classic, and this year’s line-up was no exception,” Erickson says. “Farmers are continually seeking information, ideas and innovation that can give them an edge, and Commodity Classic is the place to find it.”

Erickson says that the committee thoroughly reviews feedback from participants to determine what they find most valuable and what brings them to the Commodity Classic. Educational opportunities rank at the top.

Because multiple national farm organizations hold their policy meetings at the Commodity Classic, policy discussions and insight are important. Because there was no sitting U.S. Secretary of Agriculture when the Commodity Classic took place, Erickson convinced U.S. Congressman Mike

Conaway of Texas, chairman of the House Committee on Agriculture, to attend and to speak at one of the general sessions in order to give his perspective on plans for a new farm bill.

Erickson’s time as the co-chair and a Commodity Classic committee member is done. That detail doesn’t mean he’s done promoting.

“When I was asked to be on the committee, I was very honored. It’s something I’ll never forget,” Erickson says. “It’s an event that I’ll continue to promote as long as I can because I think it’s that important to farmers, agribusinesses and manufacturers.”

The 2018 Commodity Classic is scheduled for Feb. 27-March 1, 2018, in Anaheim, California. The event will be held in Orlando, Florida, in 2019, before returning to San Antonio in 2020.

—Story by Daniel Lemke,
photos by Steve Dolan

—Continued from page 30

“Farmers need examples of success stories and then have the ability to talk about them,” Davenport said. “Farmers talk to each other; they learn from and trust each other. Those peer relationships are important because they reduce risk, and reducing the risk of trying something new is important.”

Davenport said that having trial programs available where farmers can do things, such as trying out reduced-tillage equipment before making implement investments of their own, could be useful to inspire change. She explained that a lot of what’s been learned about alternative practices, such as using cover crops and rotational grazing, was found by trial and error.

Providing feedback to farmers is also an important part of inspiring change. Davenport likens what farmers face to playing darts in the dark.

“We provide farmers with darts, then turn the lights off. They need to know when they’re hitting the target. They don’t get a lot of feedback on how practices are contributing to water quality and habitat,” Davenport said. “The only feedback they usually get is yield, but that’s not the whole picture.”

Breaking Barriers

Davenport said that the assessment illustrated how farmers want to do the right thing when it comes to resource management, but there are constraints holding them back. Among the hurdles is risk. She explained that the research shows how farmers sometimes don’t adopt new practices not because they don’t care, but because there can be tremendous risk involved with new farming practices.

“Giving farmers the flexibility to experiment is important,” Davenport said.

Davenport said that showing farmers evidence about how practices improved water quality would likely inspire people to adopt new practices or to adjust their current efforts. She explained how developing policies that empower farmers to make decisions and to respond to changing conditions is also necessary.

Davenport said that a new approach to conservation adoption is needed: one focusing on empowerment through eco-social feedback and community building. She explained that the question of how we think differently about conservation should be reframed to be how do we think, feel and act differently to conservation. Broken feedback loops that drive social norms of skepticism, inaction and apathy need to be fixed, and investment needs to be made in programs that inspire landowners, empower

farmers and build community. She also believed that there needs to be funding for social-science assessment and monitoring.

“The big question is not what to do because there is a lot of biological evidence; it’s how do we implement changes,” Davenport said. “How do we inspire landowners, farmers and urban residents to put practices onto the landscape?”

Davenport continued, “For me, it’s a social dilemma. We need to support farmers’ ability to make changes. We have to appeal to their ethic and remove barriers that make them feel disengaged.”

Davenport and several colleagues published an e-book about inspiring action for water management. The free book is available online at freshwater.org/inspiring-action.

—Story by Daniel Lemke

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Support for Waterways

The American Soybean Association (ASA) was among 22 agricultural groups that signed letters to House and Senate Appropriations Committee leaders urging increased funding in Fiscal Year 2018 appropriations for programs that support inland waterways, ports and harbors.

Funding for these programs, administered by the Army Corps of Engineers and delivered through the annual Energy and Water Appropriations bills, has seen increases over the past several years due to policy changes and agreements enacted in the 2014 Water Resources Reform and Development Act (WRRDA). The agricultural sector has been a leading advocate for increased funding to support inland waterways and ports.

In addition to the annual appropriation requests, ASA along with other industry partners have cited waterway infrastructure as a top priority for funding with a major infrastructure-investment package that is expected to be considered this year.

Battling Foreign Biodiesel Dumping

The American Soybean Association (ASA) has signaled its support for an anti-dumping and countervailing duty petition filed by the National Biodiesel Board (NBB). The petition alleges that Argentine and Indonesian companies are flooding the U.S. market with dumped biodiesel—biodiesel that is sold at less than the cost of production—and subsidized biodiesel, violating America's trade laws. Soybean oil remains the primary biodiesel feedstock in the U.S., and the biodiesel industry provides a significant market for surplus soybean oil that

is a co-product of protein-meal production.

"Biodiesel imports from Argentina and Indonesia have flooded the U.S. market in recent years, and these imports receive trade- and market-distorting subsidies in their home countries that provide an unfair advantage over U.S. biodiesel," says Illinois farmer and ASA President Ron Moore. "Soybean farmers have a vested interest in the biodiesel industry, having made substantial investments over the past several decades to establish and build a domestic biodiesel industry and market. We believe an investigation by the Department of Commerce and the International Trade Commission will show that unfair subsidies provided by Argentina and Indonesia are resulting in imports being unlawfully dumped on the U.S. market. We look forward to the appropriate anti-dumping and countervailing duties being imposed to remedy these unfair and unlawful practices."

ASA DuPont Young Leaders Explore Issues, Marketing

The 33rd class of American Soybean Association (ASA) DuPont Young Leaders completed their training in conjunction with the annual Commodity Classic Convention and Trade Show in San Antonio, Texas.

"For more than 30 years, the ASA DuPont Young Leader program has identified new and emerging leaders for the soybean industry. The program provides training that strengthens their voices while networking opportunities create a connected and more collaborative organization," says ASA President Ron Moore. "We're grateful to DuPont Pioneer for

their commitment to this program and for helping secure the future of the soybean industry."

While in San Antonio, the Young Leaders participated in leadership and marketing training, received issue updates and had a discussion, and were recognized at ASA's annual awards banquet. The 2017 class of Young Leaders includes Kasey Bitz of LaMoure, North Dakota.

"This year's class is a remarkable group of young leaders," says Steve Reno, DuPont Pioneer vice president and business director for the U.S. and Canada.

"This year's class has focused significant energy into taking on the challenges facing our industry. I'm proud of our continued commitment to this program and impressed by the leadership skills being demonstrated already by these young leaders."

U.S.-Grown Soy Featured at Research Chefs Association

More than 1,000 research and development chefs, along with food technologists, recently learned about the benefits of U.S.-grown, high-oleic soybean oil at the Research Chefs Association (RCA) Annual Conference and Culinology Expo.

Representatives from QUALISOY, an independent, third-party collaboration that serves as a resource for information about the latest trait-enhanced soybean oils, fried up coconut shrimp in high-oleic soybean oil and served icing made with enzymatically interesterified high-oleic soybean oil to show the oil's functionality, high stability and nutrient profile.

United Soybean Board Director Annie Dee of Alabama spoke to attendees about the benefits of

sourcing U.S.-grown soybean oil. QUALISOY strengthened relationships with key ingredient decision makers from Snyder's-Lance, Campbell Soup Company, Darden Restaurants and more. QUALISOY also hosted a breakfast and live-action omelet station to highlight high-oleic soybean oil's high-heat cooking benefits.

ASA Welcomes EPA Chlorpyrifos Decision

The American Soybean Association (ASA) welcomed news from the U.S. Environmental Protection Agency (EPA) that the agency would deny a petition to remove the crop-protection tool chlorpyrifos from the market. ASA President and Illinois soybean farmer Ron Moore highlighted the science-based nature of the EPA's action and called on the EPA to continue using science when reviewing future traits.

"Soybean farmers have long maintained that, to have a functioning regulatory system, such decisions have to be based on science and can't be based only on perception," Moore said. "Steps taken by EPA are positive ones in the long-term effort toward a more science-based system. The denial of the activist petition on chlorpyrifos came on the heels of statements from academia, farmers and consumers alike, all bearing out the safety of this product when used correctly and in accordance with the manufacturer's label. Clearly, there is a valuable and necessary role for (the) EPA and other federal regulators in ensuring that products in the marketplace are safe, and it's important that all parties recognize, moving forward, that those decisions must be made only on concrete scientific data."

—Stories by Staff



Val Wagner
Monango, North Dakota

Tell us about your farm.

My husband, Mark, and I farm along with our four boys, Ian, Scott, Evan and Eli, just east of Monango. We raise soybeans, corn, wheat and alfalfa, as well as about 180 Red Angus/simmental cross commercial beef cattle. We live on the farm that Mark was raised on.

What do you like best about farming?

Watching what you plant grow and develop. It's awesome and humbling to witness. Knowing that what we're doing will impact someone else's life in some way. Providing food, fiber and fuel for our neighbors, friends, family...how could that not give you chills?

Did you always know farming was something you wanted to do?

No, actually, I was pretty set against it. Having been raised on a small farm, I was determined that I was going to get as far away from North Dakota and rural life as I could. And then when I got there, I realized that wasn't what I was looking for at all. I couldn't imagine my life anywhere else.

What's most exciting about the upcoming growing season?

Trying a few new varieties as well as a few improvements being made to our equipment. Also, my son is working on an experiment with soybeans that he's excited to see if it'll amount to anything. He may be 14, but he's a critical thinker and is always trying to find ways to improve how we do things.

How and why did you get involved with the North Dakota Soybean Council and CommonGround ND?

I coordinate the CommonGround program for North Dakota. And in the last year, I've been blown away with some of the ideas and results that have come out of our CommonGround projects and events. I constantly see ways in which farmers can have a better relationship with those that have questions at the grocery store.

Has being involved with the North Dakota Soybean Council and CommonGround ND been beneficial to you? Why?

Being involved is always beneficial; you just need to find your strengths and use them. I have benefited in many ways, including ensuring my children can have a future in agriculture. The work that the Council completes to move agriculture forward is irreplaceable.

Why are soybeans a part of your crop mix?

They fit well into our rotation and are a universally usable crop. They're easy to market,

and the return is favorable. Much like any decision you make on the farm, you do what makes sense for your business and for the next season, the next generation. Soybeans make sense.

If you could change something about the current operating climate for North Dakota farmers, what would it be?

I would love to see stable markets and vigorous trade. With a new secretary of agriculture, I'm looking forward to seeing if there are some significant changes or if we have more of the same.

What has changed most about farming since you've been involved?

Technology is amazing, but the questions that come with it can be pretty daunting. It's hard to wrap my head around the fact that so many people are quick to jump on the bandwagon when there are advancements in technology when it comes to phones, travel, etc. but do not want to see our farms use the same tools.

What changes do you expect to see on your farm in the next 5 to 10 years?

We have the next generation quickly coming up behind us. I look forward to seeing what their ideas will be to improve our farm or even just changes in crops, animals, etc. I can't wait to see if any of our boys decide to continue to farm here in ND or if their dreams take them to other places.

What do you like to do outside farming?

I like to talk to people about farming and how we raise food. Those conversations can be game changing for our business as well as for the future of agriculture. I wish more people understood how important it is to have those conversations, even if it's just with the people that you go to church with, teachers, neighbors, etc.

If you could go anywhere in the world, where would it be?

Australia is at the top of my bucket list, but I also would love to spend some time in D.C., just sightseeing.

If you could add equipment or technology to your farm, what would it be?

As a livestock farm as well, I'd love to add more cameras to the farm. The cameras have been instrumental in easing our calving-season struggles. It's amazing how much that one difference can make.

What's the one piece of farm equipment or technology you wouldn't want to be without?

Where do you begin? Technology has been an incredible time saver and increased safety on farms across the country. Picking one would be like picking your favorite child...it depends on the day. But seriously, the advancements that we have on our farm today has truly been a blessing. I can't wait to see what the future brings.

— Story and photo
by Val Wagner



Jeff Leinen
Great Bend, North Dakota

What do you grow?

We raise soybeans, corn and wheat.

How did you get started in farming?

We had a unique situation where my father and my father-in-law were in partnership on a dairy operation. I went away to college and was working in Fargo as an electrician. In 1981, my father-in-law asked if I wanted to come back to farm. I always enjoyed the farm and loved the outdoors. I thought, someday, maybe I'd come back, but I didn't know how it would happen. At that time, interest rates were very high, and the housing market slowed, so I transitioned back to the farm. Now, we live in the house where my wife grew up.

What is most challenging about the current farming environment?

Crop prices are going to be a challenge. They were a challenge last year, too, but we were pretty fortunate to have excellent yields that helped to make up for the low prices. If we have closer to average yields this year, it will be a bigger challenge.

Do you farm with anyone?

We are working our nephew into the operation. I have a son and daughter, but they both live in Wisconsin. Our nephew has been renting some land and buying some equipment, so we're transitioning him into the operation.

What is your favorite part of the growing season?

I have two different favorites. I like to watch the black dirt turn green after fields are planted, and I like the harvest.

What is challenging about farming?

Every year is different. Even when you think you've got it figured out, Mother Nature can change things. You have to learn to adapt.

What do you like to do away from farming?

We have a lake place in Minnesota that we go to most weekends. We have six grandchildren, so we enjoy going to Wisconsin to see them. I also have a motorcycle I like to ride.

What do you wish non-farmers understood about farming today?

Most people aren't aware of the cost of what we put in the ground and then expect Mother Nature to take care of it. There's a lot of risk. We can do our fertilizer, our tillage and our planting right, but if the weather doesn't cooperate, things may not work out how we planned.

—Story by Daniel Lemke,
photo courtesy of Jeff Leinen

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